

ANALYSIS OF CROSS BORDER ACQUISITIONS BY INDIAN INFORMATION TECHNOLOGY SECTOR FIRMS (PART-1)

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ABSTRACT

As Indian firms have aggressively acquired foreign entities, various studies have been conducted to analyze the change in firm's performance post acquisition as a whole, using various methods. But no study, so far, has been done to analyse the impact of OFDI over parent firm by the acquired firm. This study analyzes the impact of acquisition done by listed Indian Information Technology firms through Outward Foreign Direct Investment, as whether an acquisition successful on financial basis and up to which extent. The data was collected by annual statements of companies. The results suggest mixed results about Indian IT firms successful for their cross border acquisitions.

INTRODUCTION

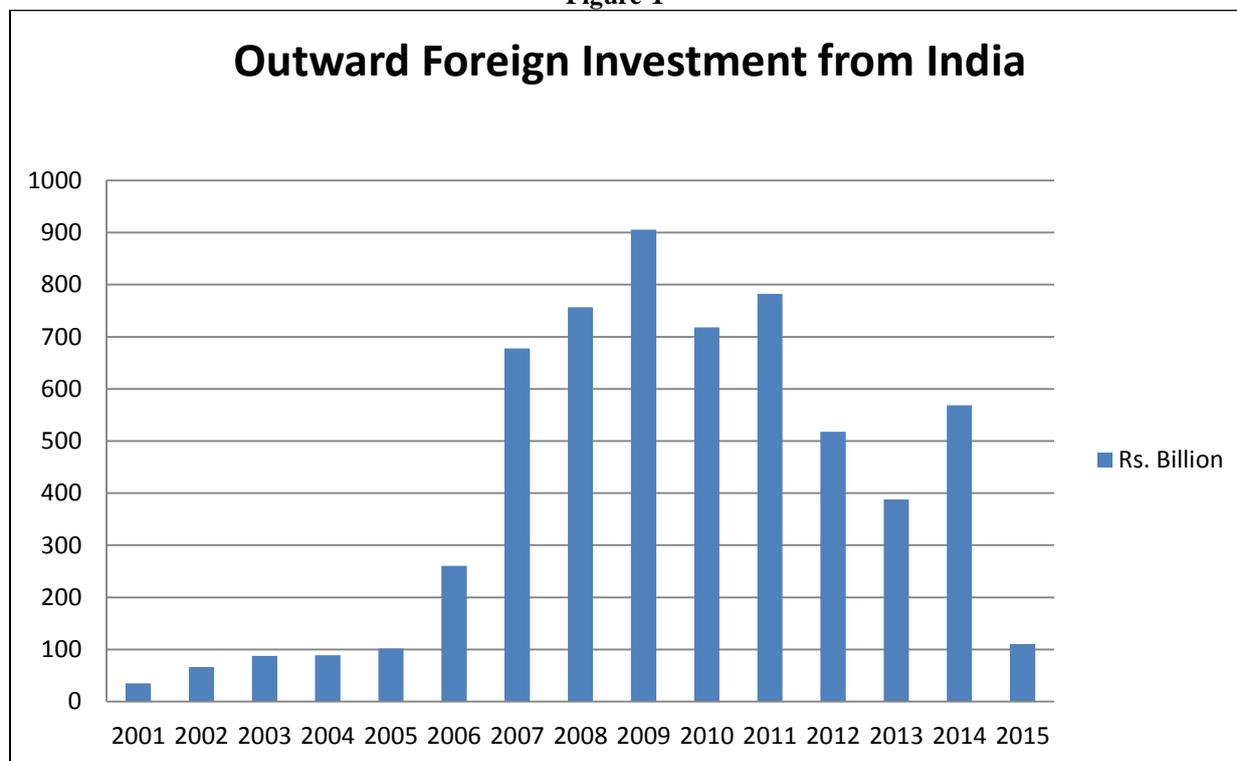
India happened to be among the top ten Outward Foreign Direct Investment sources in the period 2000-2007 and by 2008 India had become almost net outward Foreign Direct Investor country Chandrawanshi and Banerji (2014); Indian Outward Foreign Direct Investment has been a natural extension of their core competence developed over the decades. These core competencies were developed with increment growth in efficiencies and also a result of globalisation because of which Indian firms were exposed to global competition. Indian MNCs post liberalisation (1991) changed the course of business and turned to strategy of inorganic growth along with organic growth strategy, the former encouraged them to go outside geographical boundaries to seek new markets, technical know-how and strategic assets. A major change of shift of OFDI from manufacturing to services was observed during 2000, and Information Technology & Information Technology Enabled Services sector emerged as a sector with largest OFDI through Mergers and Acquisitions (M&As) activity.

Figure-1 shows trend of OFDI from India for last decade. There is a rise from 2001 to 2014 with CAGR of 22%, and highest recorded in 2009(Rs. 905 Bn.), followed by 2011(Rs. 782.57 Bn.). Sector wise distribution of OFDI from India indicates, companies from IT & ITES sector entered in maximum deals from 2005 to 2014 followed by Pharmaceutical sector (Grant Thornton 2014).

This trend of inorganic growth strategy by Indian firms motivated numerous researchers to look into the outcome of such cross border M&A activity in terms of profitability and other factors; whether Indian firms have been successful in achieving their

targets though this route. To look into the issue, in this study, previous studies which were done globally and at domestic level were studied and then problems of existing methodologies were addressed. This study is however limited to financial aspect of M&A activity. Various studies have given varied outcomes and results. Some studies found, that acquisitions were not beneficial for them, and in some it was observed have a positive impact on profitability.

Figure-1



Source-Reserve Bank of India Annual Report 2014-2015

LITERATURE REVIEW

Numerous studies have been conducted to study the impact of M&As on performance of organizations which have undergone mergers and/or acquisitions, either in domestic or cross border. Extant studies have used following methodologies in more or less similar manner to study the impact of acquisition which are as follows:

- 1) Event Study Methodology
- 2) Accounting returns analysis
- 3) Economic Value Added Analysis
- 4) Combined studies of Event study and Accounting return analysis

Event Study Methodology

In this methodology, studies were done to find the abnormal returns gained by shareholders as a result of acquisition announcement news and also in long run on shareholder's wealth. Studies were also done regarding the profitability of the acquired firms.

TABLE -1
LITERATURE REVIEW

Author(s)	Study Period	Event Window	Inference
Asquith (1983)	1962-1976	(-1,0)	For a sample of 196 firms, positive abnormal returns were found for firms where targets were large (target firm's equity is greater than 10%).
Healy et al (1990)	1979-83	(-5,5)	Sample of 50 largest mergers; found positive announcement returns and increase in operating cash flow.
Agrawal et al (1992)	1955-87	(0, 5 years)	Stockholders of acquiring firms had a statistically significant wealth loss of 10% over five years post merger completion.
Kaplan and Weisbach (1992)	1971-82	(-5,5)	44% of large acquisition divested (acquired firms were sold off), however, among them 42% gained from selling off, and 34% of the divested acquisitions were considered unsuccessful, during the period of study (1971-1982) for a sample of 271 mergers and tender offers. The returns of acquiring firms were found lower concurrent with results of previous studies.
Rau and Vermaelen(1998)	1980-91	(0,3 years)	Acquiring firms show negative abnormal returns and firms with tender offers show statistically significant but low positive abnormal returns. It was also observed that firms with low book-to-market ratio underperform as compared to high book-to –market ratio firms.
Cames et al (2001)	1985-95	(0, 3 years to 5 years)	Cross border acquisitions observed to be value destroying activity for 361 US firms. Abnormal returns were found to be significantly negative for both three and five years' period. It was observed that post announcement returns did not influence long term returns for acquirer firms.
Sudarsanam and Gao (2003)	1990-99	(0, 3 years)	386 M&As of high technology industry firms (Biotechnology, IT, Communication, Others) of UK for the period of 1990- 1999, looking for the strategic growth motives for undergoing M&A activities. The study observed that in long term, these acquisitions resulted shareholder's value going down.
Moeller et al (2003)	1980-2001	(-1,1)	For a sample of 12023 firms, size of firm influenced abnormal returns of announcement of acquisition and it was found that small firms benefited with abnormal returns as compared to large firms in long run. It was also observed that mode of financing does not influence abnormal returns.
Conn and Cosh (2003)	1984-98	(0,3 years)	In case of cross border acquisitions in high tech industries there were positive announcement returns and long term returns and for non high tech firms there were negative post acquisition returns.
Andre et al (2004)	1998-2000	N.A.	Decline in performance in the long run for both domestic and cross border acquisitions. The study had sample of 267 acquisitions done by 176 Canadian firms.
Schoenberg (2006)	1988-90	(-10, 10)	Observed success rate of 50 % for acquisitions under four measures of post acquisition performance Cumulative Abnormal returns(CAR), Managers Subjective Assessments, Experts informants subjective assessments, & Divestment Data. CAR of the acquiring firms was observed to be -0.02%.
Boateng et al (2008)	2000-04	(-20,20)	CAR and Daily Abnormal Returns were value creating for the firms after acquisition announcement. In short run it was observed that sample firms had overall average positive CAR of 4.4274% (statistically significant at the 5 percent level).
Dutta and Jog (2009)	1993-2002	(-1 year , 3 years)	1300 M&A events of Australian firms for the long run post acquisition found inconsistent results with previous studies of negative abnormal returns for the acquirer firms. The study also

			argued that results of such studies may be a result of methodology adopted and techniques used. The study used both event time(Buy and Hold abnormal return) and a calendar-time approach (Fama and French 3 factor regression) and robustness test were also done for finding concrete results.
Kyriazis(2010)	1993-2006	(0, 3 years)	Average negative abnormal returns of 2% per month of the acquiring firms stocks over three years post acquisition period. The study was based on 3-factor model given by Fama and French (1993).
Akben-Selcuk & Altio (2011)	2003-07	(-5, 5)	A sample of 62 Turkish companies which were involved in M&A, found positive abnormal returns.
INDIAN STUDIES			
Chakrabarti (2008)	2000-2007	(-1,+1) and (0, 3 years)	In the case of announcement or short run analysis, an increase in shareholders wealth of acquirer firms was observed (CAR was found 2.54%) . “The long run post acquisition returns were positive but they were value reducing as compared to their previous returns”.
Delios et al (2009)	1986-2006	(-7,7)	Majority of firms in sample had a positive CAR between 2% - 3% for their stocks after the acquisition announcement.
Kohli & Mann (2012)	1997-2008	(-50,50)	Announcement returns for Indian cross border and domestic M&As for sample of 202 cross border and 68 domestic acquisitions, and found they created value for shareholders’ in short run. Cross border acquisition announcements created more value comparatively. The factors which influenced the returns were that technology intensive sector firms outperformed non technology sector target firms.
Mallikarjunappa and Nayak (2013)	1998-2007		A sample of 227 target companies and Abnormal Returns, Average Abnormal Returns and Cumulative Average Abnormal Returns were studied for 61 day window of announcement of M&A activity. It was found that shareholders’ of the target companies benefited with the M&A activity.

Source- Author’s Study

Accounting Return Analysis

The studies conducted using this methodology looked in the post acquisition financial performance of acquiring firms through evaluating financial and profitability measures viz. Operating cash flow, Return on Assets, Returns on Equity, Returns on Net Worth, Return on Capital Employed etc. If is there a positive change in these measures of profitability in post acquisition period. Another approach which is followed is to compare the pre and post acquisition financial ratios to have a view, if there is a significant change in above said measures as a result of M&A activity.

Economic Value Added Analysis

EVA is an indicator developed by the Stern Stewart & CO., a consulting firm Kan & Ohno (2012). In acquiring firm as a result of M&A activity has been proposed by some researchers, EVA is the balance of capital earnings of an enterprise or its business segment in a certain period minus investment cost Xue S and Yang D (2006).

TABLE -2
LITERATURE REVIEW

Author(s)	Study Period	Inference
Meeks(1977), (cited from Bruner 2002)	1964-72	Decline in profitability of acquiring firms in terms of ROA following five years of acquisition was found and two third of sample demonstrated lower performance as compared to industry standard
Mueller (1980), (cited from Bruner 2002)	1962-72	Post acquisition profitability of sample firms was compared with pre acquisition profitability and no significant difference was observed. It was also found that non-acquiring firms performed better than their acquiring counterparts during the period of observation.
Ravenscraft and Scherer (1987), (cited from Bruner 2002)	1950-77	Observed significant negative relationship between operating ROA and tender offer activity. Firms with tender offer activity were found 3.1% less profitable than firms without activity.
Healy et al (1992), (cited from Bruner 2002)	1979-84	Asset productivity improved post acquisition which improved operating cash flow in 50 sample firms of study as compared to their industry peers. Authors argued that operating cash flow improvement associated with announcement returns of stock on the merging firms.
Sharma & Ho (2002)	1986-99	For a sample of 36 Australian acquisitions, it was observed that post acquisition performance did not significantly improve for the sample firms during the observation period. It was also found that mode of financing or type of acquisition (conglomerate and non-conglomerate) does not significantly affect measures of post acquisition operating performance.
Bertrand and Betschinger (2012)	1999-2008	Studied 120 acquisitions by Russian firms and found the acquiring firms' profitability declined in both domestic and cross border acquisitions
Oduro and Ageyi (2013)	1999-2010	For sample of five firms involved in M&A activity, listed on Ghana Stock exchange experienced decreased profitability. The study observed that post merger profitability (ROA and ROE) decreased as compared to pre merger.
Bortoluzzo et al (2014)	1994-2008	Firms which undertook cross border acquisitions gain financial synergies and improvement in financial performance. Companies experienced improved financial performance till third acquisition and then a decline in performance was observed.
Abbas et al (2014)	2006-11	Observed no significant change in performance of acquiring banks, for sample of 10 banks in Pakistan.
Ashfaq(2014)	2000-2009	Relative performance of firms deteriorated (insignificantly) after M&A activity; also the absolute performance of firms deteriorated, for sample of 16 firms of non financial sectors (textile, pharmaceutical, cement, automobile, electronics)
Inoti et al (2014)	2001-2010	Observed no improvement in post merger financial performance for a sample of 11 Kenyan listed firms.
INDIAN STUDIES		
Pawaskar(2001)	1992-95	For a sample of 36 domestic acquisitions, It was found that post merger profitability did not improve for the acquirer firms, but size of assets and financial synergies increased Comparing the performance of the firms involved in merger with a firm which was not involved in merger showed that if no merger had taken place, the post-merger period profitability would have improved.
Mantravadi and Reddy (2008)	1991-2003	Firms from some industries (Banking & Finance, Pharmaceuticals) experienced improved performance post merger and performance of firms of some industries declined (Agri-Products, Chemical, Electrical, Textile).
Ramakrishnan (2008)	1996-2002	Financial performance of firms had improved as compared to the pre merger period. The study also observed that pre merger performance significantly influences post merger performance.
Kumar (2009)	1999-2002	For sample of 30 firms, found no improvement in post merger performance of sample firms, although the study used ROCE, asset turnover ratio and solvency ratio for measuring post merger profitability. All three measures show slight change in post merger period but all the results were statistically insignificant.

Saboo and Gopi (2009)	2000-2007	Sample firms improved financial performance in domestic case and a decline was observed in case of cross border acquisitions.
Mishra and Chandra (2010)	2001-2008	For sample of 52 firms in pharmaceutical sector observed there is no significant effect of M&A on the profitability of firms.
Sinha and Gupta (2011)	1993-2010	Analysed 80 cases of acquisitions and mergers in Indian Banking industry(both inbound and outbound), and found that liquidity of the firms decreased three years after merger and profitability was observed to increase in majority of cases.
Leepsa & Mishra(2012)	2001-2010	Liquidity of acquirer firms was found to decline and profitability increased. In case of relatively large sized target firms' performance declined. For large size firms, profitability and liquidity improved and for small size firms there was an increase in both but statistically insignificant.
Kohli (2013)	1997-2008	Found a significant increase in profitability after acquisition on acquiring firms by comparing pre and post profitability ratios for sample of domestic M&A activity of 20 listed Indian firms.
Verma & Sharma (2014)	2002-2008	For a sample of 59 Indian telecom industry acquisitions, the operating performance variables did not showed any improvement after the M&A.
Rani et al (2015)	2003-2008	Observed an increase in financial performance of firms post M&A. The authors also analysed in terms of DuPont analysis and found higher profit is generated per unit net sales by the acquiring firms after the M&A. The higher profits (profit before interest and taxes and non-operating income) are generated primarily due to the better operating margins.
Tripathi and Lamba (2015)	1998-2007	For a sample of 272 foreign M&As done by Indian listed firms, concluded that profitability, liquidity and solvency declined after merger but the size of the acquiring firm is increased.

Source- Author's Study

TABLE-3		
LITERATURE REVIEW		
Author(s)	Year of Study	Inference
Sirower and O'Byrne	1998	Linked stock market returns of acquisition announcements and found high correlation among stock market predictions and operating performance of acquiring firms. The authors developed a benchmark, which can be used to measure the effects of acquisition on acquirer firm's improvement in EVA.
Leepsa	2015	York (2004) using EVA as performance measure found that the operating performance declines after the acquisition similar to the performance of other companies in the industry.
Xiao & Tan	2009	EVA increased post acquisition as compared to pre merger and thus the firm's performance can be stated to improve significantly in short term (when 2 and 3 years post M&A is compared with one year pre M&A i.e. 2001), but in long term i.e. 4 years after M&A the results were statistically insignificant.
Kan & Ohno	2012	Studied effects of merger on banking sector and found not all mergers resulted in improvement in EVA. It was also found that improvement comes gradually after merger not immediately. The authors found significant impact of merger after 5 years of activity. The period of study was 1989-2008.
Singh et al	2012	The cross border acquisitions made by Indian firms are value destroying.

Source- Author's Study

Combined Studies Of Event Study And Accounting Return Analysis

Some of the researchers tried to analyse cross border deals using both Event Study and Accounting Return Analysis to get a better understanding of acquisition's impact in short run and long run as well.

TABLE-4		
LITERATURE REVIEW		
Author(s)	Year of Study	Inference
Faktorovich	2008	Compared domestic and cross border deals done by US firms and found that cross border deals lag behind domestic ones in respect of profitability; 1 to 3 years post acquisition. Also foreign deals performed below industry average in terms of profitability. For stock market returns analysis, author concluded that cross border deals outperformed domestic deal as far as five days returns of deal announcement is concerned, and the factors which resulted this were the size of both acquirer and target firms.
Chen and Lin	2009	Studied 42 cross border deals made by 31 Chinese firms and found only 50 % of the sample firms showed improved performance after acquisition. Event study methodology of same sample helped authors in concluding that the announcement of such deals resulted in positive abnormal returns to shareholders. A regression run for analysing possible variables which influence the CAR of firms was done, and a result it was observed, state owned firms negatively impacted as they lacked international experience. It was stated, "consistent with the findings by KPMG, acquirers with lower P/E ratio and of smaller market capitalization (size) tended to be more successful in these cross-border M&A deals, at 1% significance level. Acquiring companies with low P/Es might not be as tempting to engage in deals with higher risks since their stocks were undervalued in the market. Acquiring companies with high P/Es, which were more likely to have already overvalued stocks at the time of the deal, would have a more difficult time to further increase the value of their stocks after a transaction" (Chen & Lin 2009). It was observed that previous experience of acquirers also had a positive impact on returns of sample deals.
Akben-Seluck and Altioik	2011	Concluded, stock returns of announcement of deals were above industry average, and accounting returns study suggested that for acquirer companies in sample, post acquisition performance declined as compared to pre-acquisition. Sample taken was of 62 Turkish companies which acquired various companies during 2003-2007.

RESEARCH METHODOLOGY

Data Sample

The impact of M&A depends on both internal and external environmental factors. Internal environmental factors involve resources and performance of acquiring firm, and external environmental factors include economic growth and degree of competition at home country, changes of political and cultural environment of host country etc Changqi & Ningling (2010). From the review of literature done in study, following research gaps were observed.

- 1) Not all the studies have exclusively studied cross border acquisitions made by Indian firms.
- 2) It is not certain that, the sample firms studied had not went for such any other inorganic activity viz. M&A or started any new venture or facility in any country in years following acquisition or any external environment factor viz. changes in government policy, tax rates, foreign currency exchange rates to say a few have affected the firm's performance. Therefore, it is not necessary that the increase or decline in profitability is solely due to the M&A activity studied.

Thus this study attempts to find the impact of acquisition made by acquired firm on acquiring firm by looking into the contribution made by former on latter in terms of growth of Net Profit and whether the acquisition benefited the acquiring firm on profitability parameters viz., Net Profit Margin, ROA, ROE in long run i.e. 3 years post acquisition. For this purpose financial data of the acquiring companies is taken from the annual reports of relevant years using consolidated financial statements. All monetary figures are in Rupees Crore (1 Crore= 10 Million). The firms were shortlisted under two criteria:

- 1) Acquiring firm should be a public company listed in Indian Stock Exchanges, the reason for taking these firms are
 - a. Study is about OFDI from India
 - b. Public limited firms have the wherewithal to raise funds for acquisitions.
- 2) Acquisition should have been made during period of 2007 & 2008 or earlier but not before 2000, and not post 2008 because post 2008 deals will lead to insufficiency of data points.

Considering the above criteria, following deals were found, the source for information was Dealtracker published by Grant Thornton India of relevant years.

Out of the shortlisted deals mentioned in Table-5, deals illustrated in Table-6 were considered for final sample because, in rest of the acquisitions identified the acquired companies were either merged into other subsidiary of acquiring company or were liquidated in short span of time (2 or 3 years), as a result data points were not available for analysis.

S.No.	Acquirer	Acquired	Year of Acquisition	Deal Size (US Million \$)
1	HCL Technologies Limited	Liberata Financial Services	2008	2
2	Mastek Technologies	Vector Insurance	2007	9
3	MPhasis Technologies	Princeton	2005	15
4	MPhasis Technologies	Eldorado	2005	16.5
5	HCL Technologies Limited	Control Point Systems	2008	21
6	Tata Consultancy Services	Comicon	2006	23
7	Infosys Technologies	Expert Information Systems	2003	24.9
8	NIIT Technologies	Room Solutions	2007	25
9	3i Infotech	J&B Software Inc	2007	25.25
10	Tata Consultancy Services	Financial Network Services	2006	26
11	Wipro Technologies	American Management Systems	2002	26
12	Infosys Technologies	P-Financial Services Holdings B.V	2008	28
13	Wipro Technologies	mPower	2003	28
14	Mastek Ltd	Systems Task Group	2008	29
15	Firstsource Technologies	BPM	2007	30
16	Satyam Computers	Bridge Strategy Group	2008	34.4
17	Mascon Global Ltd	Ebusinessware Inc	2008	35
18	Hexaware Technologies	FocusFrame	2006	35
19	HCL Technologies Ltd.	CapitalStream	2008	39.5
20	Rolta India Ltd	TUSC	2008	45
21	Quintegra Solutions	PA Corporation	2007	49
22	Mascon Global Ltd	Jass & Associates Inc & SDG Corporation	2008	55
23	Accentia Technologies	GSR Physicians	2007	63
24	Megasoft Limited	Boston Consulting Group Inc.	2007	65
25	Accentia Technologies	DenMed	2007	66
26	3i Infotech	Regulus Group	2008	80
27	Tata Consultancy Services	TKS- TeknoSoft	2007	80
28	HOV Services	BPO Lason	2007	108
29	Subex Technologies Limited	Azure	2007	140
30	Subex Azure Limited	Syndesis Limited	2007	164.5
31	Firstsource Technologies	MedAssist	2006	330
32	Wipro Technologies	InfoCrossing	2007	600
33	HCL Technologies Limited	Axon Group plc	2008	750
34	NIIT Technologies	Softec GmbH	2008	N.A.

Source: Dealtracker and Saxena & Sen (2013)

S.No.	Acquirer	Acquired	Year of Acquisition	Deal Size (US Million \$)
1	HCL Technologies Limited	Liberata Financial Services	2008	2
2	MPhasis Limited	Princeton	2005	15
3	HCL Technologies Limited	Control Point Systems	2008	21
4	Tata Consultancy Services	Comicon	2006	23
5	Infosys Technologies	Expert Information Systems	2003	24.9
6	NIIT Technologies	Room Solutions	2007	25
7	Tata Consultancy Services	Financial Network Services	2006	26
8	Megasoft Limited	Boston Consulting Group Inc.	2007	65
9	Tata Consultancy Services	TKS- TeknoSoft	2007	80
10	Subex Technologies Limited	Azure	2007	140
11	Subex Azure Limited	Syndesis Limited	2007	164.5
12	FirstSource Limited	MedAssist	2006	330
13	HCL Technologies Limited	Axon Group plc	2008	750
14	NIIT Technologies	Softec GmbH	2008	N.A.

Source: Dealtracker and Saxena & Sen (2013)

Out of the deals listed in Table-6, the final eight deals selected for publication purpose are illustrated in Table-7.

S.no	Acquirer	Acquired Company	Year of Acquisition	Deal Size (in Million Dollars)
1	Tata Consultancy Services	Comicon	2006	23
2	Tata Consultancy Services	Financial Network Services	2006	26
3	Tata Consultancy Services	TKS- TeknoSoft	2007	80
4	Infosys Technologies	Expert Information Systems	2003	24.9
5	MPhasis Limited	Princeton	2005	15
6	Subex Technologies Limited	Azure	2007	140
7	Subex Azure Limited	Syndesis Limited	2007	164.50
8	Firstsource Limited	MedAssist	2006	330

Source: Dealtracker and Saxena & Sen (2013)

For this part the following deals are included

1. Tata Consultancy Services acquired Comicon
2. Tata Consultancy Services acquired Financial Network Services
3. Tata Consultancy Services acquired TKS- TeknoSoft
4. Infosys Technologies acquired Expert Information Systems

METHODOLOGY

Methodology for this study consists of two measures for analysing the impact of acquired firm on acquiring firm. In the first part a statistical model is developed which attempts to find relationship between rate of Net Profit of acquired firms with the rate of change Net Profit of acquiring firm, and secondly Profitability analysis is done for analysing what are the repercussions of acquisition on the acquired firm post acquisition.

Statistical Model

For finding the contribution of acquired firm, firstly, this study attempts to find the relationship between rate of change of Net Profit of acquiring firm and acquired firm(s), by developing a model which establishes the relationship between parameters. For this purpose Ordinary Least Square (OLS) is used as Statistical tool. Software Packages SPSS 19 and EViews 7 were used. In the model, rate of change of Net Profit of acquiring firm is taken as Dependent Variable, starting from 2 years after acquisition till year 2014 and in some cases 2015, and rate of change of Net Profit of acquired firm is taken as Independent Variable. The reason for taking such parameters is, during the year of acquisition, firm may be in burden of heavy cash outflow or debt taken for purpose of conducting acquisition, so two years time is believed to be required for integrating the acquired firm completely. Another reason for taking Net Profit as a parameter is, it reflects the actual earnings made from investments made by any firm. Changqi & Ningling (2010), in their study used ROA as dependent variable to study the impact of cross border acquisition on firms and stated "The reason for using ROA of the two year after M & A is that, in the literature, it is generally accepted that mergers and acquisitions performance cannot be shown immediately until the second year after; costs typically increase in the year of mergers and acquisitions and the first year after it is an integration period when a lot of investments are still needed. So, ROAs in these two years are not good indicators."

This study takes rate of change of Net Profit of acquiring and acquired firms as dependent and independent variables, which are derived as following

$$\text{Rate of change of Net Profit} = (\text{NetPr}_{t+2} - \text{NetPr}_{t0}) / \text{NetPr}_{t0}$$

NetPr_{t+2} = Net Profit after 2 years of acquisition

NetPr_{t0} = Net Profit in year of acquisition

Similarly for years following acquisition variables are derived till 2014, for instance

$(\text{NetPr}_{t+3} - \text{NetPr}_{t0}) / \text{NetPr}_{t0}$ is Net Profit growth after 3 years of acquisition and so on.

- 1) Since the availability of data points were limited, the variables were Detrended only. Detrending was achieved by Polynomial fit through MS-Excel. Levin & Rubin (1997).
- 2) Further transformation of the variables was undertaken separately for each deal to achieve best fit model under OLS. Transformation of Dependent and Independent variables is based on the requirement of statistical results and according to it variables are transformed as NewX^2 , LnNewX , NewY , LnNewY etc. Durbin Watson Statistic must be in zone of no auto correlation or inconclusive

Inconclusive (DW= 1.08 -1.36), No Auto Correlation (DW= 1.36-2.64) Bajpai (2010)

- 3) The significance of OLS being less than 10% preferably less than 5%.
- 4) Unstandardised coefficient with more than or 95% confidence not to range from positive to negative.

Profitability Analysis

For the profitability analysis, this study first looks into the contribution of acquired company in terms of revenues generated through it, as it reflects how much share does the acquired company has in the revenues of acquiring company. Further, this study looked in the contribution made by acquired firm, at the segmental level of the acquiring firm.

From the profitability point of view, how much the acquisition has impacted the acquiring firm, taking revenues only in consideration, is insufficient, so, ratio analysis of the acquiring firm has been done. Some international studies, Sharma & Ho (2002), Bertrand and Betschinger 2012, Oduro and Ageyi (2013), Bortoluzzo et al (2014) etc studied pre and post merger profitability. In Indian context Mantravadi and Reddy (2008), Ramakrishnan (2008), Saboo and Gopi(2009) etc studied pre and post M&A profitability for acquiring companies. The above studies have compared pre and post M&A ratios for analysing the impact of M&A. This study looks in profitability measures for acquiring firms 2 years before the acquisition and 3 years post acquisition period, to assess the impact of M&A in long run and also calculates CAGR of the ratios from year of acquisition to 3 years post M&A. This study uses only absolute financial data for analysis, derived from annual reports of companies under study.

For measuring overall profitability, Return on Equity (ROE) is taken as tool, which is universally accepted ratio for measuring profitability. ROE reflects how well the returns are generated on the shareholders' money. For looking more into profitability ROE is decomposed using Du Pont analysis. DuPont Analysis breaks ROE into Return on Assets (ROA), Net Profit Margin, Asset Turnover and Financial Leverage, this technique was introduced by Du Pont Corporation. Using Du Pont Analysis it is possible to get a clearer picture of post M&As profitability, i.e. whether profit margin, asset turnover or Equity Multiplier has been improved or deteriorated post M&A. This study uses absolute values of components used in analysis. For assets, this study uses Gross Block of Assets given in Balance sheets of relevant acquiring companies retrieved from Annual reports of companies of relevant years Palepu & Healy (2014).

$$\text{ROE} = \frac{\text{Net Income}}{\text{Shareholders' Equity}}$$

$$\text{ROE} = \text{Return on assets (ROA)} \times \text{Financial Leverage}$$

$$= \frac{\text{Net Income}}{\text{Assets}} \times \frac{\text{Net Income}}{\text{Shareholders' Equity}}$$

ROA, tells how the company has utilised its assets in generation of profits, as with acquisition there is certainly an increase in assets of acquiring firm, Financial Leverage on the other hand depicts, the usage of each rupee generated on account of shareholder's investment.

The ROA can further decomposed as

$$\text{ROA} = \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}}$$

Net Profit Margin, Asset Turnover, ROA, Equity Multiplier and ROE of the acquiring companies depicts the impact of M&A post acquisition, as because of which factor the performance of acquiring company improved or deteriorated.

RESULTS AND DISCUSSION

In this section, overall results of statistical analysis and profitability analysis of all the deals are presented, as shown in table- ; statistical model highlights of all deals studied are presented in Table-8.

Deal	Dependent Variable	Independent Variable(s)	Unstandarized Coefficient	Coefficient	r	R ²	F-Stat	D.W. Stat
TCS acquired Comicron	NewY	Age	-3.249	0.249*	0.96	0.92	43.268	2.705
TCS acquired FNS Australia	NewY	Age	-3.249	0.249*	0.95	0.91	43.268	1.795
TCS acquired Teknosoft	NewY	NewX ²	-109.228	-4.389*	0.95	0.97	50.129	2.443
Infosys acquired Expert Information Services	NewY	Ln NewX, NewX ²	-1232.335**	48.189*, - 5.343E- 022*	0.983	0.966	56.084	2.230

Source- Author's Analysis *- level of sig.<1%, **-level of sig.<5%

TCS acquired Comicrom

For this deal the statistical results suggest no relationship between dependent and independent variables, only age of TCS happens to play a significant role in statistical model. So it can be concluded that the post acquisition performance of TCS can be because of the age factor, a study by Fowler and Schmidt (1989), had found that age of organization improves the post acquisition financial performance of the acquiring firms. At the time of this study, TCS was at of 45 years of age.

TCS acquired FNS Australia

For this deal too, the statistical results suggest no relationship between dependent and independent variables, only age of TCS happens to play a significant role in statistical model. So it can be concluded for this deal is that the post acquisition performance of TCS can be because of its age.

TCS acquired TKS-Teknosoft

Since NewX has greater number of negative values in its original form, hence it was converted to its squared value and renamed NewX². Linear regression was run with both NewX and NewX²; taking age of TCS as constant, and regression was run on SPSS 19. In the second variable input phase, New X and NewX² were entered step-wise, after entering Age in first phase. Autocorrelation is absent as DW = 2.45. Step-wise entry removes multicollinearity from computation. After differentiating the best fit equation (**NewY = 7.67Age -4.39New X²-109.23**)

$$\Delta\text{NewY} = -8.78\text{NewX} \text{ \{as Age and intercept are constant\}}$$

1% change in New X leads to approximately 9% change in rate of NewY in opposite direction.

The statistical results came out to be like, $\Delta\text{NewY} = -8.78\text{NewX}$ (as Age and intercept are constant), 1% change in New X leads to change of approximately 9% in NewY in opposite direction. The change in direction by 9% is symptomatic of comparison between two sets of figures, one starting with a low base and other starting with a higher base.

Infosys acquired Expert Information Systems

The statistical analysis showed a strong correlation between the dependent variable (NewY) i.e. of rate of change of Net Profit of Infosys Technologies, independent variable rate of change of Net Profit of Infosys Technologies (Australia), (NewX, NewX², LnNewX). The variables are transformed to de trended values, to avoid collinearity. Along with detrended values NewX has been transformed to NewX² and natural log of NewX is taken (LnNewX), all the variables were entered using step wise method. Differentiating,

$$\Delta(\text{NewY}) = 48.20/\text{NewX} - 10.68\text{E}-022\text{NewX}$$

Differentiating the best fit equation indicates the change in dependent variable is induced by change in independent variable, but Since $-10.68\text{E}-022\text{NewX}$ is close to zero, hence this can be ignored leading to

$$\Delta(\text{NewY}) = 48.20/\text{NewX}$$

As the independent variable is LnNewX, standard deviation of Standardized Coefficient must be looked, which suggests change in one unit of Standard Deviation in Independent Variable i.e. NewX leads to change of $(e^{-0.728} \approx 0.4849; -0.728 = \text{Standard Coefficient})$ 0.4849 units in NewY. Incidentally the same is also true when the variables are interchanged. This also suggests that change in Independent Variable is not much influential for Dependent Variable.

Following section describes the profitability analysis part of the study, in which acquiring firms' profitability returns in terms of revenue generation and changes in profitability measures three years post acquisition are compared with two years prior acquisition is done.

TABLE-9					
Tata Consultancy Services					
Year	Net Income/Sales	Sales/ Assets	ROA	Assets/ Equity	ROE
2005	20.36	254.11	51.74	110.32	57.08
2006	22.62	209.91	47.47	105.24	49.96
2007	22.77	193.82	44.13	108.93	48.07
2008	22.13	174.42	38.60	106.57	41.13
2009	19.10	166.85	31.86	106.17	33.83
Infosys					
2003	26.23	125.24	32.85	101.71	33.41
2004	25.63	145.16	37.20	102.88	38.27
2005	26.53	134.05	35.57	96.27	34.24
2006	25.82	135.36	34.94	100.98	35.29
2007	27.75	123.39	34.25	100.04	34.26
2008	27.91	121.00	33.77	100.00	33.77

Source- Author's Analysis

PROFITABILITY ANALYSIS

For the profitability analysis, this study first looks into the contribution of acquired company in terms of revenues generated through it, as it reflects how much share does the acquired company has in the revenues of acquiring company. Further, this study looked in the contribution made by acquired firm, at the segmental level of the acquiring firm.

Tables- 10 to Table-15 gives the contributions made by acquired firms (Comicrom, FNS and TKS-Teknosoft) in total revenues of TCS and the contributions made by them at segmental level, it can be seen that a very less amount of share is made by the acquired firms at both consolidated and segmental levels.

Year	Revenue(Comicro)	Revenue (TCS)	Percentage
2006	45.28	13377.8	0.34
2007	192.84	18914.26	1.02
2008	236.13	22863	1.03
2009	203.81	27813	0.73
2010	150.11	30029	0.50
2011	199.44	37928.31	0.53
2012	250.24	48893.83	0.51
2013	321.21	62989.48	0.51
2014	361.71	81809	0.44

Source- Annual Reports

Year	Segment Revenue (Others)	Revenue(Comicro)	Percentage
2006	n/a	45.28	n/a
2007	n/a	192.84	n/a
2008	n/a	236.13	n/a
2009	6188.03	203.81	3.29
2010	6559.82	150.11	2.29
2011	8468.65	199.44	2.36
2012	11871.91	250.24	2.11
2013	14686.78	321.21	2.19
2014	18784.79	361.71	1.93

Year	Revenue(FNS)	Revenue (TCS)	Percentage
2006	27.2	13377.8	0.20
2007	235.3	18914.26	1.24
2008	274.25	22863	1.20
2009	4.48	27813	0.02
2010	129.65	30029	0.43
2011	34.02	37928.31	0.09
2012	86.26	48893.83	0.18
2013	57.08	62989.48	0.09
2014	66.69	81809	0.08

Source- Annual Reports

TABLE-13			
Year	Segment revenue(BFSI)	Revenue(FNS)	Percentage
2006	5077.72	27.2	0.54
2007	8200.26	235.3	2.87
2008	10091.24	274.25	2.72
2009	12047.18	4.48	0.04
2010	13488.85	129.65	0.96
2011	16526.6	34.02	0.21
2012	21062.22	86.26	0.41
2013	27146.25	57.08	0.21
2014	35112.41	66.69	0.19

Source- Annual Reports

TABLE-14			
Year	Revenue(TeknoSoft)	Revenue (TCS)	Percentage
2007	48.99	18914.26	0.26
2008	286.68	22863	1.25
2009	412.29	27813	1.48
2010	383.6	30029	1.28
2011	510.43	37928.31	1.35
2012	761.54	48893.83	1.56
2013	756.2	62989.48	1.20
2014	943.3	81809	1.15

Source- Annual Reports

TABLE-15			
Year	Segment revenue(BFSI)	Revenue(Teknosoft)	Percentage
2007	8200.26	48.99	0.60
2008	10091.24	286.68	2.84
2009	12047.18	412.29	3.42
2010	13488.85	383.6	2.84
2011	16526.6	510.43	3.09
2012	21062.22	761.54	3.62
2013	27146.25	756.2	2.79
2014	35112.41	943.3	2.69

Source- Annual Reports

For Infosys, Table-16 gives the contribution made by Expert Information Systems in total revenues of Infosys. It can be seen in table that contribution in revenue generation of Infosys by Expert Systems was not very high all through the years, but the acquired company had fairly contributed in revenue generation of Infosys. The contribution made by Expert Systems at the segmental level was not available to analyze because the acquired firm does not provide IT services for any specific sector or vertical instead it worked in domains of telecom, financial services, retail, and government services (Annual Report 2004).

Year ended	Revenue(Infosys Australia)	Revenue(Infosys)	Percentage
2005	302.23	7129.65	4.24
2006	321.22	9521	3.37
2007	446	13893	3.21
2008	556	16992	3.27
2009	549	21693	2.53
2010	711	22742	3.13
2011	984	27501	3.58
2012	1485	33734	4.40
2013*	580	40352	1.44

Source- Annual Reports *- In 2013 the acquired firm was liquidated and dividend of Rs 578 Crore was received.

The overall impact of the acquisitions made by the firms are observed in the view of change in profitability measures three years post acquisition as compared to two years prior acquisition keeping the year of acquisition as base year. The following section describes the results for every acquiring firm.

Tata Consultancy Services (TCS)

Ratio analysis of TCS reveals that Net Profit Margin, Sales Turnover Ratio, ROA and ROE decreased 3 years post acquisition by almost 5.5%, 7.3%, 12.5%, and 12% respectively. That means TCS had drastic increase in revenues and Net Profit after acquisitions but it was not able to generate profit out of sales after acquiring firms and turnover of assets were also decreased, and majorly shareholder's wealth is observed to be deteriorated 3 years after acquisition and also showed a continuous downfall. The acquisitions done by TCS benefited it by providing various IP assets and new market penetration which is reflected in increase in revenues and increase in assets is also observed. In case of TCS, assets increased by 164% from 2006 to 2009 i.e. 3 years post acquisition, which showed that acquisitions not only increased its revenues, market penetration and client base but was also able to increase its wealth through assets. But decrease in Net Profit Margin, Sales Turnover Ratio, ROA and ROE showed operating inefficiency as TCS was not able to maximise utilization of the acquired assets and revenue increase. Although, it must be noted that in company's annual reports assets are recorded on historical costs and not on the market value.

Infosys

Looking into the deal as a whole and its benefits, Infosys made a fruitful investment, as it was able to regain its investment in form of dividends from Infosys Technologies (Australia) in subsequent years and also gained market access and clients on behalf of the acquired company, along with its Intellectual property. From ratio analysis of Infosys it is visible, that post acquisition Infosys has maintained its Net Profit Margin and ROE ratios; however ROA slightly reduced but not deteriorated.

CONCLUSION

Results of this part of study suggest that, the rate of change of net profit of acquired firms is independent of rate of change of net profit of acquiring firms (TCS and Infosys). However, both the firms were able to expand their penetration in new geographies and increase their revenues. TCS acquired three firms in two years and increased its presence in Latin America, Europe and Australia, this helped in increasing the revenue manifolds but despite of increase in revenues and net profits, it was observed TCS had faced a downfall in all profitability measures three years post acquisition. Infosys made its maiden overseas acquisition and maintained its growth in terms of revenues, net profit and all profitability measures and was also able to ripe back the investments made in acquiring Expert Information Services. Although, in case of both acquiring firms it can be concluded that the acquired firms does not influence their growth. Limitations and directions of future research is discussed in Part-2 of the article.

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