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# Mergers, Acquisitions and Wealth Creation: A Comparative Study in the Indian Context

## Abstract

*This paper presents a comparative study of the effect of mergers and acquisitions (M&A) on the wealth of shareholders of acquirer and target firms. The study is based on four subsets of a sample consisting of 252 acquirer and 58 target firms involved in acquisitions, and 165 acquirer and 18 target firms involved in mergers during the period 1998–2006. The results indicate that M&A are positive net present value activities for bidding and target firms. The average announcement day excess returns was found to be highest for target firms involved in mergers, followed by acquirer firms involved in mergers.*

For a firm characterised by the objective of stockholder wealth maximisation, the appropriate test of the success of a merger is its effect on stock prices. In an efficient capital market, the investor's expectation of the merger's future benefit should be fully reflected in the stock prices by the date of the merger. The increase in the equity value of the acquiring firm in the wake of a successful merger is compelling evidence for the synergy theory of mergers and acquisitions (M&A). The questions concerning the impact of a merger on the market value of merging firms have occupied a prominent position in the literature of economics and finance for the last half-century in the western context. In response to these questions, a number of carefully conducted empirical investigations have documented the effect of a merger on the wealth of the common stockholders of merging firms.

In the context of mergers as corporate investment, it follows that there is an incentive for the stockholders to acquire firms, which increases the variability of the firm's cash flow. The profitability of a merger can be enhanced by positive synergistic effects due to the effective integration of productive facilities and distribution networks.

The terms ‘merger’, ‘acquisition’, ‘buyout’ and ‘takeover’ are all part of the M&A parlance. In a merger, corporations come together to combine and share their resources to achieve common objectives. The shareholders of the combining firms often remain joint owners of the combined entity. An acquisition involves the purchase of the assets or shares of one firm by another where the acquired firm’s shareholders cease to be owners of that firm. In a merger a new entity may be formed subsuming the merging firms, whereas in an acquisition the acquired firm becomes the subsidiary of the acquirer<sup>1</sup>. A merger is principally a legal process and a follow up to an acquisition of controlling interest. Tata Tea acquired Tetley in 2001 and there is speculation that the companies will be merged in the future. Hindalco acquired Indal in 2000; according to reports Hindalco and Indal will be merged in the future<sup>2</sup>.

The basic objective of this paper is to compare the stock market reaction to the announcement of a merger or an acquisition process. The sample data was collected from the CMIE Prowess database<sup>3</sup>. The focus of this study is based on the media announcement of the initial event—

merger or acquisition.

## Theoretical Postulates about Stock Market Reactions to M&A

A merger can be described as an attempt by the bidding firm to secure control of the target firm and implement an operating strategy that will increase the value of both firms. The consolidation of two firms via mergers is a wealth increasing investment for the stockholders of both firms. In an efficient capital market, if there is certainty about the scope, timing and success of a firm’s merger programme, then the entire net present value of a merger programme should be capitalised in stock prices when the programme is first announced. If there is uncertainty about the programme, the market reaction should be ongoing as new information is released<sup>4</sup>. In an efficient capital market, the investor’s expectations of future benefits should be fully reflected in stock prices by the merger date. Post merger stock prices could experience a merger related increase (or decrease) as actual merger

## Some Prominent Mergers and Acquisitions

In a general sense, mergers and acquisitions (takeovers) are very similar corporate actions. They combine two previously separate firms into a single entity. A merger involves the combination of two companies to form one entity. A typical merger involves two relatively equal companies, which combine to become one legal entity for synergy purposes. In a merger of two corporations, the shareholders usually have their shares in the old company exchanged for an equal number of shares in the merged entity. For example in 1998, American automaker Chrysler Corp merged with German automaker Daimler Benz to form Daimler Chrysler. The merger was thought to be quite beneficial to both companies as it gave Chrysler an opportunity to reach more European markets and Daimler Benz would gain a greater presence in North America. In 2006, the two steel giants Arcelor and Mittal merged to form Arcelor-Mittal. In 2002, Reliance Petroleum Ltd (RPL) merged with Reliance Industries Ltd (RIL), the largest ever merger in the Indian corporate industry. The merger was aimed to create India’s only world scale fully integrated energy company with operations ranging from oil and gas exploration, production, refining and marketing of petrochemicals, power and textiles. ICICI Ltd and ICICI Bank merged to create India’s first Universal Bank. The four ICI companies—Crescent

Dyes, Chemical & Fibers, Alkali & Chemicals, and Indian Explosives—were merged into one giant conglomerate known as IEL, which was later renamed ICI India Ltd.

An acquisition or takeover involves the purchase of a smaller company by a much larger one. This combination of unequals can be friendly or hostile. A large company can initiate a hostile takeover of a smaller firm in the face of resistance from the smaller company’s management. In an acquisition, the method of payment will be cash price per share to the target firm’s shareholders or the acquiring firm’s shares to the shareholders of the target firm according to a specified conversion ratio. Either way, the purchasing company essentially finances the purchase of the target company, buying it outright for its shareholders. Examples of successful takeovers include the takeover of Bombay Suburban Electric Supply (BSES) by Reliance, and the Tata takeover of Corus. Walt Disney Corporation bought Pixar Animation Studios in 2006. This takeover was friendly as Pixar’s shareholders all approved the decision to be acquired. In an all-cash deal, Hindalco acquired Indal in 2000. In 2007, British telecom giant Vodafone bagged Hutch Telecom International’s (HTIL) 67% stake in Hutch-Essar at an enterprise value of \$19.3 billion (approximately Rs 86,000 crore) which comes to \$794 per share.

benefits are realised to be greater than or less than expectations. Market efficiency requires that these merger benefits are equally likely events. A second implication of market efficiency is that merger related stockholder gains if any should be reflected in pre merger stock price performance<sup>5</sup>. In a theoretical sense the merger has to produce a non-negative operating or financial benefit. In the context of the assumption that the manager acts to maximise stockholder welfare, merging firms are expected to exhibit normal or superior pre merger price performance. If the resources are unique to the target firms, a competitive acquiring market results in most of the gains being captured by the target firm's shareholders. If the resources are unique to the bidding firms, then their shareholders should capture the rent from the resource. If the resources are unique across a particular pair of firms or limited to a set of firms (e.g. monopoly power or horizontal economies of scale), the gains from the merger will have to be split between the bidding and target firms<sup>6</sup>. Analytically, a merger can be considered as a special case of the purchase of an income-producing asset. Assuming no interaction between the returns from purchased assets and existing assets, the increment in shareholder wealth will depend on the price paid for the asset relative to the discounted present value of the asset's cash flow. In the case of a merger, when information concerning both the merger and the exchange terms becomes available to investors, the security prices of the companies involved in the merger will react to reflect the expected profitability. The change in the equity value for the buying firm when measured from some base date reflects the expected net present value of the merger. The change in the value of the equity for the selling company is the difference between the price actually paid for the company and the value of the equity without the merger. The sum of the increases in the values of the equities for the merger partners is the market's expectation of the expected total economic gain (or loss) from the merger<sup>7</sup>.

## Review of Literature

Target shareholders usually gain when a merger, acquisition, or tender offer is announced. Research in the area of mergers has more than kept pace with the increasing number of mergers in the economy, investigating the motivation, cyclical nature, profitability, and determination of the negotiated exchange ratios for mergers. In the Indian context not many studies<sup>8</sup> have

documented the effect of a merger on the wealth of the shareholders of merging firms.

Most of the empirical studies on the profitability of the acquiring firm suggest that mergers are unsuccessful<sup>9</sup>. An important study examined the market for acquisitions and the impact of mergers on the returns to the stockholders of the constituent firms<sup>10</sup>. The results were consistent with the hypothesis that the market for acquisitions is perfectly competitive, and suggest that there are resources which earn positive gains when combined across firms.

The study by Asquith et al<sup>11</sup> examines the effect of mergers on the wealth of bidding firms' shareholders. Bidding firms gain significantly during the twenty-one days leading to the announcement of each of their first four merger bids. The results fail to support the capitalisation hypothesis that bidder's gains are captured at the beginning of merger programmes. The study by Langetieg<sup>12</sup> employs four alternative two-factor market industry models in combination with a matched non-merging control group to measure stockholder gains from mergers. Moeller et al<sup>13</sup> examine the announcement returns using a sample of 12,023 acquisitions by public firms during the period 1980–2001. The results of this study show that the equally weighted abnormal announcement returns are 1.1 per cent but acquiring firm shareholders lose \$25.2 million on average upon announcement. Moeller et al<sup>14</sup> find that acquisition announcements in the 1990s were profitable in the aggregate for acquiring firm shareholders until 1997, but the losses of acquiring firm shareholders from 1998 through 2001 wiped out all gains made earlier, thereby making acquisitions announcements in the later merger wave costly for acquiring firm shareholders. Pandey<sup>15</sup> documents a significant announcement effect of 10% associated with takeovers in India. Agarwal and Singh<sup>16</sup> empirically investigate the existence of insider trading prior to merger announcements based on a sample of 42 companies during the period 1996–1999. The study finds that there is strong evidence suggesting the existence of insider trading activity.

The hypotheses and methodology of some of the major studies—from 1974 till 2005—on stock market reactions to M&A have been summarised in Exhibit 1. Exhibit 2 lays out the findings related to abnormal returns associated with M&A that have been discussed in these studies. The various hypotheses referred to in Exhibit 1 are explained in the box on page 230.

## Exhibit 1 Summary of Major Studies on Stock Market Reactions to Mergers and Acquisitions

Period	Study	Hypothesis	Methodology: Expected Return	Explanations
1974–1980	Mandelker <sup>17</sup>	Perfectly competitive acquisitions market hypothesis (PCAM), Efficient capital market hypothesis (ECMH), Chain letter hypothesis (CLH), Growth maximisation hypothesis (GMH)	Two factor market model	Results indicate that market for acquisition is perfectly competitive.
	Franks et al <sup>18</sup>	PCAM, ECMH	Market model, market index in combination with industry indices	Gains on combined shareholdings in acquiring and acquired companies appear to reflect net gains from merging within the industry.
	Langestieg <sup>19</sup>	Value creation, ECMH	Four alternative two factor market-industry models in combination with a matched non merging control group; Statistical test: Standardised excess return test, Percent positive test, Percent significant test	The introduction of a third factor—the non-merging control groups—has substantial impact on performance measurement.
1982–1983	Dodd <sup>20</sup>	Wealth creation	Market model	Swift and large positive market reaction to the first public announcement; positive reaction to approval of completed proposals; negative reaction to cancelled proposals.
	Asquith and Kim <sup>21</sup>	Value creation, Diversification effect, Incentive effect	Monthly abnormal returns for sample bonds calculated using a paired comparison technique; monthly stockholder returns calculated using Ibbotson model	While the stockholders of target firms gain from a merger bid, no other security holders either gain or lose.
	Asquith et al <sup>22</sup>	Value creation, Capitalisation effect, Size effect and Time effect	Securities grouped into ten equal control portfolios, ranked according to Scholes-Williams beta estimates; Regression analysis for size, time and capitalisation effect	Bidding firm's abnormal returns are positively related to the relative size of the merger partner.
	Asquith <sup>23</sup>	EMCH, synergy theory for target firms, management inefficiency hypothesis.	Securities grouped into ten equal control portfolios, ranked according to betas	Increase in the probability of merger harms the stockholders of both target and bidding firms. Stock market forecasts probable merger targets in advance of any merger announcement.
	Eckbo <sup>24</sup>	Collusion hypothesis	Market model	Antitrust law enforcement agencies systematically select relatively profitable mergers for prosecution. The evidence indicates that the mergers would not have had collusive, anticompetitive effects.
	Schipper and Thompson <sup>25</sup>	Size maximisation, Share value maximisation	Market model	Results support the hypothesis that acquisition activity had a favourable

Period	Study	Hypothesis	Methodology: Expected Return	Explanations
1982–1983	Wansley et al <sup>26</sup>	Value creation	Market model, Discriminant analysis	ex ante impact on the value of firms announcing an intention to engage in acquisitions. The evidence suggests that complex formulas derived from financial variables could have been used successfully in portfolio selection.
	Malatesta <sup>27</sup>	Value maximisation, Size maximisation, Improved management hypothesis, ECMH	Market model	The immediate impact of merger per se is positive and highly significant for acquired and negative for acquiring firms.
1986–1987	Dennis and McConnell <sup>28</sup>	Co insurance hypothesis, Redistribution hypothesis	Market adjusted returns procedure	Acquired companies common stockholders, convertible and non-convertible preferred stockholders, and convertible bondholders gain in merger.
	Allen and Sirmans <sup>29</sup>	Wealth maximisation	Mean adjusted return	Primary source of value gain is attributed to improved management of the acquired trust assets.
	Lubatkin <sup>30</sup>	Value creation	Market model, Paired difference procedure	Mergers led to permanent gains in stockholder value for both acquirer and target firms.
1991–2005	Singh and Montgomery <sup>31</sup>	Value creation	Market model	Related acquisitions are found to have total greater dollar gains than unrelated acquisitions.
	Franks et al <sup>32</sup>	ECMH, Size effect	Market model, Ten factor (Lehman model), Eight portfolio (Grinbiatt model)	The traditional single factor benchmark generates significant differences in post merger performance related to medium of exchange, the relative size of bidder to target and whether or not bid is contested.
	Agrawal et al <sup>33</sup>	Long term performance—wealth creation; market is slow to adjust to the merger event	Dimson & Marsh model, RATS Ibbotson methodology, Regression analysis for relation between announcement period returns and post merger returns	Results suggest that neither firm size effect nor beta estimation problems are the cause of negative post merger returns.
	Fuller et al <sup>34</sup>	Value creation	Modified market model	Results indicate that multiple bidder shareholders gain when buying a private firm or subsidiary but lose when purchasing a public firm.
	Luo <sup>35</sup>	Learning hypothesis	Probit regression model	The market reaction to M&A announcement predicts whether the companies later consummate the deal.
	Moeller et al <sup>36</sup>	Value creation	Market model	Acquiring firms lose 12 cents around acquisition announcements per dollar spent on acquisitions.

## Exhibit 2 Abnormal Returns Associated with Mergers and Acquisitions (1970–1980)

Period	Study	Sample Period	Event Period	Bidding Firm (%)	Target Firm (%)
1974–1980	Mandelker <sup>37</sup>	1941–1962	Month after through 12 months after the effective date* Seven Months preceding merger**	+0.60*	14**
	Franks et al <sup>38</sup>	1955–1972	40 months before through 40 months after announcement (for acquirer) (-40 to +2 months for acquired firms)	-0.004	0.179
	Langetieg <sup>39</sup>	1929–1969	Month after through 12 months after effective date	-6.59	12.9
	Dodd <sup>40</sup>	1970–1977	The day before and the day of offer announcements	-1.09	+13.41
	Dodd <sup>41</sup>	1970–1977	20 days before through the first public announcement	+0.80	+21.78
	Dodd <sup>42</sup>	1970–1977	10 days before offer announcement through 10 days after outcome date	-7.22	+33.96
	Elgers and John <sup>43</sup>	1957–1975	24 months before through 24 months after announcement	0.097	0.426
1982–1983	Asquith and Kim <sup>44</sup>	1960–1978	10 days before through 10 days after the public announcement	1.8	14.9
	Schipper and Thompson <sup>45</sup>	1960–1967	12 years before to 6 years after announcement of acquisition programmes	15.1	
	Asquith <sup>46</sup>	1962–1976	The day before and day of offer announcement	+0.20	+6.20
	Eckbo <sup>47</sup>	1963–1978	The day before through the day after the offer announcement	+0.07	+6.24
	Asquith <sup>48</sup>	1962–1976	19 days before through the first public announcement	+0.20	+13.30
			480 days before a merger bid until 240 days after a merger bid. 480 days before a merger bid until outcome day* (The day in which the outcome of merger reported in press)	+7.0	+8.5*
	Eckbo <sup>49</sup>	1963–1978	20 days before through ten days after public announcement	+1.58	+14.08
	Asquith et al <sup>50</sup>	1963–1979	20 days before the announcement day through the announcement day	+3.48	+20.5
	Malatesta <sup>51</sup>	1969–1974	Public announcement month	+0.90	+16.8
	Asquith <sup>52</sup>	1962–1976	The day before announcement through outcome date	-0.10	+15.50
	Asquith <sup>53</sup>	1962–1976	Day after through 240 days after outcome announcement	-7.20	-9.60
Malatesta <sup>54</sup>	1969–1974	Month after through 12 months after approval for entire sample	-2.90		
Wansley et al <sup>55</sup>	1973–1977	7 months prior to merger		29.1	
1986–1987	Dennis and McConnell <sup>56</sup>	1962–1980	19 days before through 20 days after merger announcement	3.40	18.63
	Asquith et al <sup>57</sup>	1977–1983	40 days before through 40 days after announcement	8.71	

Period	Study	Sample Period	Event Period	Bidding Firm (%)	Target Firm (%)
1986–1987	Singh and Montgomery <sup>58</sup>	1975–1980	5 days before through 25 days after announcement (Related)	-0.006	0.359
	Singh and Montgomery <sup>59</sup>	1975–1980	5 days before through 25 days after announcement (Unrelated)	-0.019	0.219
	Allen and Sirmans <sup>60</sup>	1977–1983	40 days before through the day of announcement	8	
1991–2005	Franks et al <sup>61</sup>	1975–1984	5 days before the first announcement of a bid and ending 5 days after the last bid.	-1.02	28.04
	Cornett and Tehranian <sup>62</sup>	1982–1987	From 1 day before through the day of announcement	-0.8	8
	Agrawal et al <sup>63</sup>	1955–1987	1 month to 60 months after merger completion	-10.26	
	Singal <sup>64</sup>	1985–1988	From 1 day before through the day of announcement	1.843	18.42
	Houston et al <sup>65</sup>	1985–1991	4 days before through 1 day after announcement	-3.47	20.80
	Amihud et al <sup>66</sup>	1985–1998	From 10 days before through 1 day after merger announcement	-1.0	
	Fuller et al <sup>67</sup>	1990–2000	2 days before through 2 days after the announcement date.	1.77	
	Moeller et al <sup>68</sup>	1998–2001	Acquisitions in 2 year windows immediately before and immediately after the first large loss deal a firm made	-0.65	

### ***Studies Analysing Cumulative Abnormal Return***

There are several cross sectional studies which aim to analyse the determinants of the acquiring firm's shareholders' wealth. These studies regress the cumulative abnormal return (CAR) upon variables that include relative size of transaction (size), and dummy variables that control for method of payment, mode of acquisition, industry relatedness, multiple bidders, etc. The results of various cross sectional studies analysing the determinants of CAR have been summarised in Exhibit 3.

### **Mergers, Acquisitions and Wealth Creation: A Study**

In the following sections, we discuss the objectives of the study, the details of sample selection and data, and the methodology used in the current study.

The following box explains the various hypotheses relating to M&A. This study tests the efficient capital market hypothesis, abnormal gains hypothesis and the wealth-maximising hypothesis.

### ***Objectives of the Study***

This study explores the stock market reaction to event uncertainty—to M&A announcements—on a comparative basis. The study aims to find out whether acquisition or merger announcements lead to greater abnormal returns. There are several basic questions involved: Are mergers and acquisitions associated with abnormal positive or negative returns? If so how are the abnormal returns shared between the shareholders of the acquired and acquiring companies? Is the capital market efficient with respect to M&A? That is, is the information on mergers reflected immediately in the stock prices of merging firms? We test the efficient capital market hypothesis that share prices fully and instantaneously reflect all new information. According to this hypothesis, the value of expected benefits from a merger would be reflected in share prices when the merger is first anticipated. Stock prices would be expected to provide unbiased signals for efficient resource allocation.

In short, the study examines the effect of mergers on the wealth of the shareholders of the acquirer and target firms involved in M&A, and also on market efficiency.

### Exhibit 3 Cross Sectional Studies Analysing the Determinants of Cumulative Abnormal Return (CAR)

Study	Event Period	Model Description	Results
Megginson et al <sup>69</sup>	Two day interval from Day -1 to Day 0	The dependent variable of the bidder's actual 2 day CAR based on market model was regressed upon variables that represent the benefits and costs of acquisitions for stock and cash. The independent variables included the variables of personal tax benefit of an acquisition for stock, the net corporate tax benefit of an acquisition for stock, the market to book value ratio of bidder and target equity, the variable of size measured by the market value of target's equity to market value of bidder's equity, percentage of bidder's outstanding shares owned by managers and finally dummy variables representing the feasibility of an acquisition for cash; same industry sector; target being the first company in its industry to be acquired, bidder making other acquisition attempts.	The bidders are concerned about the effect of taxes when they choose the method of payment. Bidders consider the importance of contingent pricing when choosing the method of payment for an acquisition. The hypothesis is that the bidder's managers consider the signalling implications of their choice of payment method. The results do not support the hypothesis that bidders were concerned about the competitive disadvantage of an acquisition for stock.
Walker <sup>70</sup>	Interval of -2 day to +2 days relative to the takeover announcement	The cumulative market adjusted return (CMAR) was regressed upon independent variables that included the relative size of transaction (size) and dummy variables that control for the method of payment (cash or stock), mode of acquisition (tender offer), industry relatedness, multiple bidders and strategic objectives.	The results support the asymmetric information and strategic alignment hypotheses. Changes in shareholder wealth are related positively to cash offers, relative transaction size and two strategic objectives expanding geographically and increasing market share.
Lang et al <sup>71</sup>	5 days before the tender offer announcement to five days after the final revision by the bidder	CAR was regressed upon variables of cash flow, leverage, size (ratio of target to bidder size), liquid assets and dummy variable for Tobin q for values greater than 1.	The results support free cash flow hypothesis. The effect of free cash flow on bidder's returns explains a larger fraction of the cross sectional variation in returns than the nature of the control contest.
Servaes <sup>72</sup>	From announcement date of takeover until the effective date or the delisting date whichever comes first	The weighted average of target and bidder returns were regressed upon dummy variables indicating target and acquirer q ratio, cash payment, multiple bidder, hostile takeover and relative size measured by the ratio of the market value of target and bidder.	Overall the evidence indicates that the magnitude of the target firm's q ratio is an important determinant of takeover gains.
Travlos <sup>73</sup>	1 day before to the day of takeover announcement	The two day average standardised CAR is regressed on the variables which represent the proportion of the transaction funded through the common stock, the bid premium as a percentage of the bidding firm's stock price one month prior to the first announcement of the bid, and relative size of target and acquirer.	The findings indicate that the only significant variable is the proportion of the acquisition financed through an exchange of stock. The results suggest that the announcement period abnormal returns to bidding firms reflect information effects associated with the method of payment used to finance acquisitions.
Asquith et al <sup>74</sup>	21 days prior to and including the announcement day	CAR for bidding firms was regressed on the log of merger size, time period, success of the merger bid and merger number.	The log of size, the time period and the success of the merger are all statistically significant variables in explaining excess returns for bidding firms. Most of the information about first merger reaches the market during the first announcement day.

# Hypotheses Concerning Mergers and Acquisitions

## **The Perfectly Competitive Acquisitions Market Hypothesis (PCAM)**

In a perfectly competitive market, competition will equate the expected rates of return on assets of similar risk. If the acquisitions market offers higher expected returns than equivalent activities of similar risk, more resources will be directed to this activity until expected rates of return are reduced to a competitive level. The reverse holds if the acquisition market has lower expected returns than equivalent activities of similar risk. The PCAM hypothesis implies that for an acquiring firm there are no monopolistic sources of gains due solely to merging as a way of obtaining productive capacity. In a scenario of one-sided perfect competition where the acquiring firm might be in a perfectly competitive acquisitions market but the acquired firm might have some unique resources, only the acquiring firm's stockholders will earn normal levels of expected returns from an acquisition. If a firm to be acquired has some resources which are not used effectively and which could provide economic gains to other firms by merger, then competition among these firms will cause any abnormal returns from the merger to go to the stockholders of the acquired firm<sup>60</sup>.

Some economists argue that firms merge to achieve synergy. In a perfect market firms are able to achieve synergy equally by internal or external growth

## **The Efficient Capital Market Hypothesis (ECMH)**

The efficient capital market hypothesis says that stock prices adjust instantaneously to new information. Thus stock prices provide unbiased signals for efficient resource allocation.

## **The Abnormal Gains Hypothesis (AGH)**

This hypothesis states that information concerning forthcoming acquisition is generally considered good news for the stockholders of the acquiring firms.

## **The Chain Letter Hypothesis (CLH)**

It states that investors rely on very few sources of information, the main ones being financial and accounting numbers. The chain letter hypothesis implies that shareholders are misled by manipulation of accounting numbers so that the announcement of a forthcoming merger is followed by a rise in stock prices of the acquiring firm.

## **The Growth Maximisation Hypothesis (GMH)**

This hypothesis states that managers maximise, or at least pursue as one of their goals, the growth in physical size of their corporation rather than its profits or stockholders' welfare.

## **Market Power Hypothesis**

The market power hypothesis implies that mergers increase product prices thereby benefiting the merging firms and other competing firms in the industry. Higher prices allow competing firms to increase their own product prices or output and therefore the equity values of competing firms should also rise on the offer announcement.

## **Collusion Hypothesis**

Rivals of merging firms benefit from the merger since successful collusion limits output, and raises product prices, and/or lowers factor prices. The central characteristic of the collusion theory is its implication for merger-induced changes in relative product (and factor prices). In other words the basic proposition is that rivals can expect to benefit from the news of a horizontal merger, which significantly reduces the costs of enforcing a tacit collusive agreement within the industry of the merging firms.

## **Wealth Maximising or Value Maximising Hypothesis**

Mergers should lead to positive expected and total realised gains on average since an increase in wealth should accrue from the mergers. Both firms involved in a merger attempt are assumed to be value maximisers.

## **Management Utility Maximisation Hypothesis**

The rationale is that there need not be an overall economic gain from the merger; what the seller's shareholders gain as an enticement to enter the merger is offset by what the buyer's shareholders lose, and the total gain may be zero; if there are diseconomies of scale, the total gain may be negative.

## **Improved Management Hypothesis**

This hypothesis retains the assumption that would-be acquirers maximise value, but assumes that potential target firms are controlled by inefficient management. This hypothesis is related to the concept of a market for corporate control. In other words mergers are viewed as a response to the suboptimal management policies of target firms.

## **Asymmetric Information Hypothesis**

Acquiring firm shareholders earn higher returns following cash offers.

## **Strategic Alignment Hypothesis**

Acquiring firm shareholders earn higher returns following takeovers that expand the firm's operations geographically or increase its market share.

## **Relatedness Hypothesis**

Mergers or acquisitions between strategically related firms would generate abnormal returns.

## **Learning Hypothesis**

Learning means specifically that the managers of merging firms extract information from the stock market reaction to the M&A announcement and consider the information in making the closing decision. In short learning implies information flows from the market to the company. The testable hypotheses were 1) companies are more likely to learn in pre agreement deals than in agreement deals; 2) companies are more likely to learn in non high tech deals than in high tech deals; and 3) smaller bidders are more likely to learn than larger bidders.

An earlier study<sup>75</sup> analyses the distinctive financial characteristics of the acquirer and target firms involved in mergers based on accounting. This paper examines the wealth effects of merger and acquisitions as separate entities. The study also attempts to examine the determinants of the acquiring firm's shareholder wealth in both M&A.

### Sample Selection and Data

The sample firms involved in M&A were selected based on the availability of media announcements of mergers and takeovers, obtained from the CMIE Prowess database, financial newspapers like *The Economic Times*, *Business Standard* and websites like *indiainfoline*, and the homepage of the Bombay Stock Exchange (BSE)<sup>76</sup>. The initial sample size for acquirer and target firms with respect to acquisitions was 593 and 216 respectively, and with respect to mergers was 300 and 21 respectively. The period studied was 1998–2006. The final sample size was truncated since only actively traded firms—firms involved in M&A which were traded at least four days in a week—were considered for the study. The merger analysis consisted of 165 acquirer firms and 18 target firms. In the case of acquisitions there were 252 acquirers and 58 targets.

### Event Date Selection

Choosing the appropriate event date is important in event studies and is generally based on the motivation of the research. For example to test the efficiency of stock market reaction to the announcement of the merger, the event should be centred on the date of the merger announcement<sup>77</sup>. The benefits of the merger to acquiring firms are likely to be reflected in stock values around the time when an acquisition programme is initiated<sup>78</sup>.

Over time, post merger performance should be zero in an efficient market, and the entire valuation effect associated with the combination should occur on average at the time of the announcement<sup>79</sup>.

The event date considered in this study is the media announcement of a merger or an acquisition. A stronger test of market efficiency would use the first public announcement date.

### Methodology

This study uses the market model method which is explained in the following section.

### Market Model Method

The econometric methods used in this study conform to the methodology widely used in finance.

Residual analysis essentially tests whether the return to the common stock of individual firms or groups of firms is greater or less than that predicted by general market relationships between return and risk. One problem involved is the choice of reference period for obtaining the parameters to be used in calculating excess returns caused by events such as mergers. If the reference period chosen is too long or far removed from the event, then the risk characteristics of the sample firm may have changed in the interval. If the reference period is too short, it may not represent a valid benchmark.

The choice of the benchmark is probably the most important factor in making an accurate measurement of a merger's impact.

The expected rate of return on the security was calculated using the market model. The model parameters were estimated by regressing daily stock return on the market index over the estimation period. To use the market model a clean period was chosen: -100 to -250 days (0 day being the merger announcement day) to estimate the model parameters (a and b). The market model is given by

$$R_t = \alpha + \beta R_{mt} + \varepsilon_t$$

where  $R_{mt}$  is the return on Sensex for day  $t$ ,  $\beta$  measures the sensitivity of the firm to market—this is a measure of risk—and  $\varepsilon_t$  is a statistical error term where  $\Sigma \varepsilon_t = 0$ .

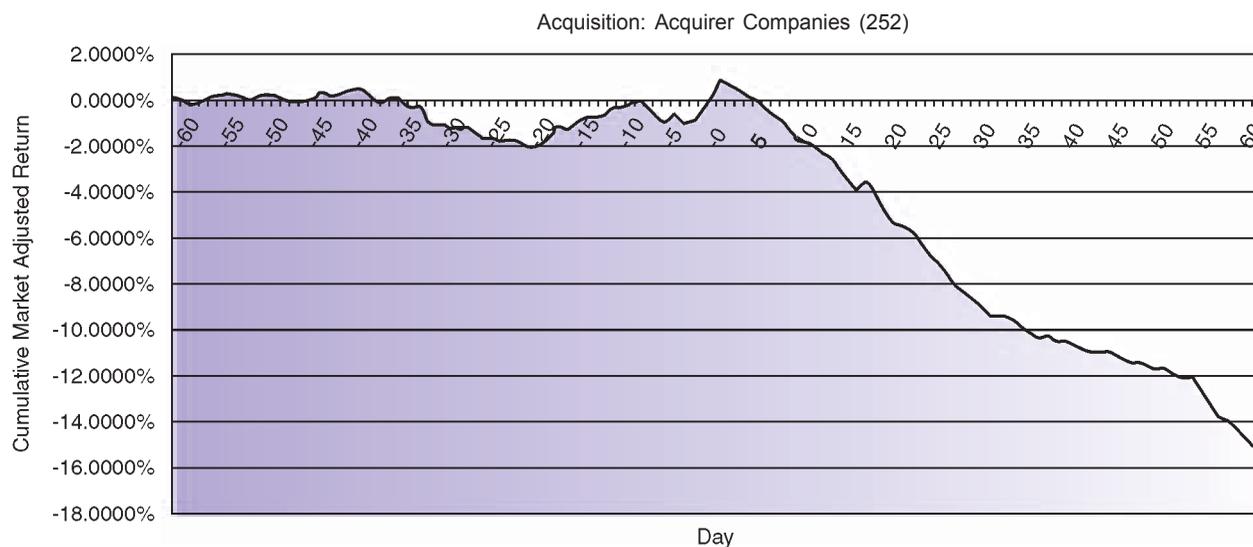
Thus the predicted return for the firm in the event period is the return given by the market model on that day using these estimates. The market model method is the most widely used method since it takes explicit account of both the risk associated with the market and mean returns.

The market's reaction to a merger bid is measured using daily stock return data to compute excess stockholder returns. These excess returns are a measure of the stockholder's returns from the new information which becomes available to the market. The daily excess return for the security is estimated by

$$XR_t = R_t - E(R_t)$$

where  $t$  = day relative to an event,  $XR_t$  = excess return on the security for day  $t$ ,  $R_t$  = actual return on the security for day  $t$ ,  $E(R_t)$  = predicted or expected rate of return on the security for day  $t$ .

## Exhibit 4 Cumulative Abnormal Returns (CAR) of Acquirer Firms Involved in Acquisitions



Fluctuating negative gains in the pre announcement period and CAR positive during the announcement period and downward movement after the announcement

First, the average excess returns (AAR) for each relative day  $t$  are calculated across the securities. Daily average cumulative abnormal returns (CAR) are the sum of the average excess returns over event time. In other words, CAR is defined as the sum of previous daily average residuals for each trading day. The  $t$  statistics are then calculated.

In the event time, the day on which a merger announcement appears in the press is designated as 0. Trading days prior to the merger announcement are numbered event days -1, -2 and so on. The event days following the merger are numbered +1, +2 and so on. The maximum time window involved in this study is -60 days to +60 days. Other shorter time windows were also applied. For merger announcements which occur before the stock market closes, the proper event date is  $t = -1$ . For events which are announced after the market closes the proper event day is  $t = 0$ .

### Analysis and Interpretation

#### Acquisitions

Exhibit 4 graphs the cumulative excess returns (CAR) for the period sixty days before to sixty days after the announcement day. The graph shows fluctuating negative gains in the pre announcement period. The cumulative excess returns become positive during the announcement

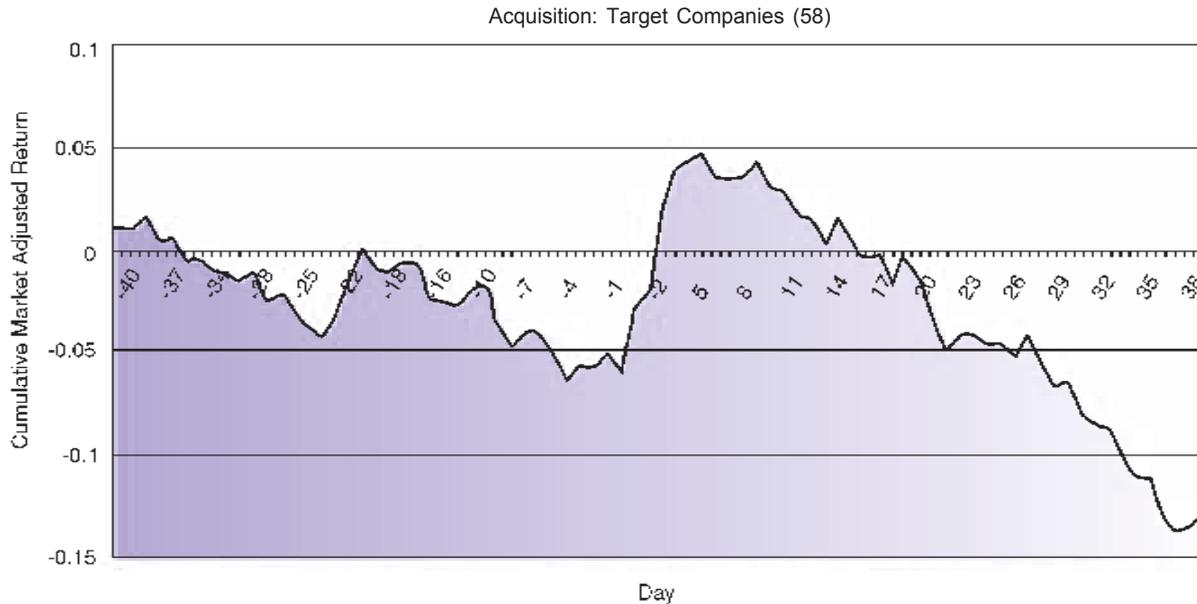
period. A brief sharp upward rise is observed surrounding the announcement date. The abnormal return has shown a steep rise from -3 day to the day of announcement. From the +1 day of announcement of acquisition, there has been a drastic downward movement of the abnormal returns for the acquirer firms.

Exhibit 5 graphs the target firms' CAR for forty days before the acquisition announcement to forty days after the announcement. CAR shows a sharp increase from -25 to -22 day. Further, till -3 day of announcement, the excess return fluctuates tending towards downward movement. But during the time window of -3 to +3 day, there is a sharp rise in the cumulative excess return. From +7 day onwards, CAR shows a rapid declining trend.

Thus there is a much larger and dramatic excess returns for target firms compared to acquirer firms surrounding the date of acquisition announcement. The CAR of both acquirer and target firms shows a persistent and rapid decline during most of the post announcement period.

The marked decline in the CAR of most target firms before the announcement date is consistent with the hypothesis that the stock prices of most target firms reflect a prior probability of an acquisition bid. In other words, the stock market predicts the most potential target firms. The implication of this interpretation is that the pre announcement share prices of most target firms are higher due to the expectation that they are potential targets.

## Exhibit 5 Cumulative Abnormal Returns (CAR) of Target Firms Involved in Acquisitions



CAR showing a sharp increase from -25 to -22 day and fluctuating till -3 days of the announcement; sharp rise during -3 to +3 day and declining trend after +7 day

The following section presents the analysis of the daily rates of return. Exhibit 6 identifies each event day relative to event day 0, the average daily market model adjusted excess returns and the cumulative average abnormal

returns for the acquirer and target firms involved in acquisitions during the period 1998–2006, and presents the cumulative market model adjusted returns for various time intervals along with their t statistics.

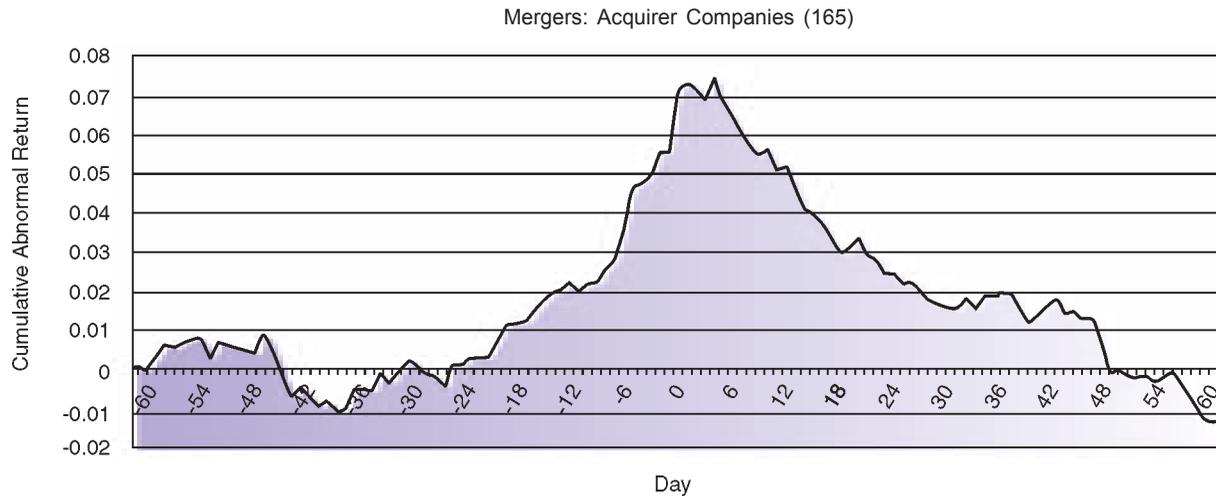
## Exhibit 6 Summary Statistics of Daily Returns of Firms Involved in Acquisition

Acquirer Firms				Target Firms			
Through		CAR Value	t statistics	Through		CAR Value	t statistics
Cumulative market model adjusted returns in %							
-60	+60	-15.23	-9.65***	-40	+40	-0.12	-5.49***
-20	+20	-3.38	2.46**	-20	+20	-0.02	0.12
-15	+15	-2.86	0.57	-15	+15	0.02	2.85***
-10	+10	-1.60	-0.42	-10	+10	0.06	4.69***
-5	+5	0.55	4.57***	-5	+5	0.09	4.25***
-3	+3	1.21	4.81***	-3	+3	0.10	3.57**
-1	+1	1.15	4.24*	-1	+1	0.07	2.32
Number of firms in the sample			252	Number of firms in the sample			58
Average alpha			0.0020	Average alpha			0.0040
Average beta			0.91	Average beta			0.54

\*\*\*, \*\*, \* indicate significance level at 1%, 5%, and 10% respectively

Both the acquirer and target CAR show abnormal positive gains with statistical significance in the shorter time windows surrounding the merger announcement

## Exhibit 7 Cumulative Abnormal Returns (CAR) for Acquirer Firms Involved in Mergers



Fluctuating gains for acquirer firms during the pre announcement period, steep rise in excess returns surrounding the announcement of the merger and steep declining movement after the +4 day from the announcement

Exhibit 6 presents the results for the acquirer and target firms' excess returns. The market model adjusted average excess returns for the acquirer firms on days -1 and 0 are 0.57% and 0.82% respectively. Over the interval starting from event day  $t = -20$  and ending with  $t = +20$ , the CAR is -3.38% with statistical significance. The two-day announcement period (-1, 0) CAR was 1.39%. The three-day gain in terms of cumulative excess returns was 1.15% for the acquirer firms with statistical significance at 10%. The CAR for a 11-day period (-5 through +5) was 0.55% and for a 7 day period (-3 to +3) was 1.21%. Both these periods show statistical significance at all levels. The average excess return during the post merger days starting from +1 day onwards shows negative gains all throughout the time window till  $t = +20$  days for the acquirer firms except in  $t = +16$ . For the target firms the average excess returns on days -1 and 0 are 0.008% and 0.039% respectively. The cumulative abnormal return in the time window period -20 to +20 day was -0.02% with statistical significance. The two-day announcement cumulative excess return was 0.04%. The three-day gain was 0.07%. All the time windows surrounding the announcement period like (-15 to +15, -10 to +10, -5 to +5, -3 to +3) have low positive CAR.

The comparative observation reveals that both the acquirer and target CAR show abnormal positive gains with statistical significance in the shorter time windows surrounding the merger announcement.

On a comparative note, it can be pointed out that the

acquirer firm's gain is larger than the target firm's gain surrounding the acquisition announcement period. A comparison of shorter time windows (-5 through +5, -3 through +3, -1 through +1) reveals that the acquirer firms' CAR of 0.55%, 1.21%, 1.15% is larger compared to target firms' gain of 0.09%, 0.10% and 0.07% respectively. Hence it can be stated that the stock market reaction was more favourable for acquirer firms than for target firms involved in acquisitions. The cumulative excess returns for both acquirer and target firms are negative in the longer time window periods surrounding the announcement period.

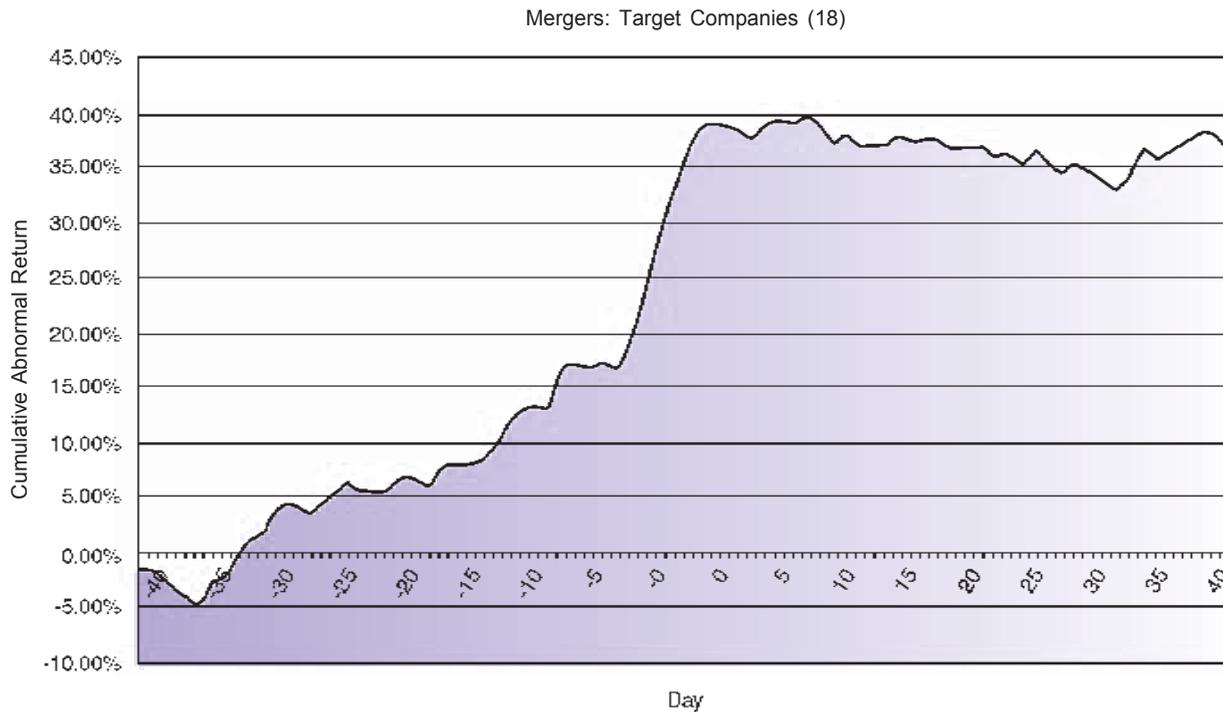
The average beta of the acquirer firms was higher than that of target firms.

### Mergers

Exhibit 7 shows the average cumulative abnormal returns for the acquirer firms involved in mergers during the time window -60 to +60 days. The graph shows fluctuating gains for the acquirer firms in the pre announcement period. There is a steep rise in excess returns surrounding the announcement period of the merger. From a gain of 0.10% on the -25 day, the gain reaches 7.46% by day +4. But after +4 days from announcement, the abnormal return shows a steep decline.

Exhibit 8 displays the average cumulative excess returns for the 18 target companies involved in the merger process during -40 to +40 days. The graph shows that the target

## Exhibit 8 Cumulative Abnormal Returns (CAR) for Target Firms Involved in Mergers



Target firms report larger gains in the period surrounding the announcement of merger

firms have larger gains in the period surrounding the announcement of a merger. From -33 to -8 days before announcement, the gain increased from 0.4% to 17.27%. By the +2 day after announcement, the abnormal returns increased to 39.12%. Thereafter the gain fluctuated till the +40 day after the announcement of the merger. From -33 day before announcement, the cumulative abnormal gains were positive till the +40 days. This positive trend was observed only in the case of the target firms involved in mergers among all the sample sections.

### ***Wealth Creation for Merger firms***

Exhibit 9 provides the summary of average daily abnormal returns and cumulative abnormal returns surrounding merger announcement dates for 165 acquirer and 18 target companies over the period 1998–2006 in the time window -20 to +20 days, and presents the cumulative market model adjusted returns for various time intervals along with their t statistics.

The average announcement day excess return for the acquirer firms involved in mergers is 1.59%. The average excess abnormal return for day +1 is 0.19%. The average excess returns were all positive in the pre merger announcement period for the acquirer firms in the period

-20 to +1 days except in the -11 day before announcement, where negative gain of 0.24% was observed. The post merger announcement returns were all negative except in a few time periods. The cumulative abnormal returns are positive in all the time window periods except in the interval -60 to +60 days with statistical significance at all levels. The cumulative abnormal return is 3.08% in the time interval -20 to +20 days. The CAR in the time interval -15 to +15, -10 to +10 and -5 to +5 days are 2.60%, 3.67% and 3.34% respectively. The three-day abnormal return is 1.79%.

The average excess return for the target firms on the announcement day was 3.46%. The -1 and +1 day from announcement day showed abnormal return of 3.59 % and 3.24 % respectively. The maximum gain of 4.9% was observed during the -2 day from announcement. The maximum CAR was observed in the +9 day from announcement in the time window -20 to +9 day. Large CAR was observed in different time windows for the target firms. The maximum CAR of 37.2 was observed in the time window -20 to +20 days with statistical significance at all levels. The three-day announcement excess return was 10.30%. The seven-day excess return (-3 to +3 days) was 19.35%. Other time windows showed

## Exhibit 9 Summary Statistics of Daily Returns of Firms Involved in Mergers

Acquirer Firms				Target Firms			
Through		CAR Value	t statistics	Through		CAR Value	t statistics
Cumulative market model adjusted returns in %							
-60	+60	-1.36	8.60***	-40	+40	37.2	13.10***
-20	+20	3.08	11.95***	-20	+20	29.9	9.93***
-15	+15	2.60	9.56***	-15	+15	29.03	9.65***
-10	+10	3.67	8.79***	-10	+10	25.39	7.16***
-5	+5	3.34	7.97***	-5	+5	20.40	5.66***
-3	+3	2.19	4.32***	-3	+3	19.35	6.13***
-1	+1	1.79	1.99*	-1	+1	10.30	3.61*
Number of firms in the sample			165	Number of firms in the sample			18
Average alpha			0.0015	Average alpha			0.0020
Average beta			0.75	Average beta			0.40

\*\*\*, \*\*, \* indicate significance level at 1%, 5%, and 10% respectively

The comparison between the acquirer and target returns reveals that target returns were much higher compared to acquirer returns

cumulative excess returns in the range of 20% to 29%. It has to be noted that the sample size of target firms was very small due to non-availability of data.

A comparison of the acquirer and target returns reveals that target returns were very much higher compared to acquirer returns. The average excess announcement day return for the acquirer firms was 1.59%, and 3.46% for the target firms. The CAR for the different time windows was higher for the target firms compared to acquirer firms. For example during the time interval -20 to +20 day, the CAR was approximately ten times higher for target firms compared to acquirer firms. Similarly in the time window -15 to +15, the CAR for target firms was about 11% higher compared to acquirer firms. In the -10 to +10 day time window the returns for target was 7% higher compared to acquirer firms. For the shorter time windows the CAR for target firms was higher—in the range of 6 to 8%—compared to the acquirer firms.

There appears to be evidence for information leakage prior to the merger announcement for acquirer and target firms involved in mergers.

The average abnormal return for acquirers involved in mergers was positive throughout the time window period  $t = -20$  to  $t = -1$  except a negative return of -0.24% during the day -11. The average abnormal return on the days -5 and -6 was 1.14% and 0.73% respectively compared to the announcement day average return of 1.59%. Over

the period  $t = -20$  to  $t = -1$ , the cumulative market model adjusted returns is 5.24%.

For the target firms involved in mergers, the cumulative market model adjusted returns was 24.91% during the time window  $t = -20$  to -1. There have been positive abnormal average returns during the time window  $t = -15$  to  $t = -11$ . The average abnormal returns on day -18 were 1.66%. On  $t = -9$ , the average abnormal return was 3.55%. In the period  $t = -4, -3, -2$ , the average abnormal return was 2.62%, 3.87% and 4.90% respectively.

This pattern of some positive abnormal performance before the press day can be explained by the leakage of news information about the impending merger.

The observation of abnormal performance for acquirer and target firms involved in acquisitions do not reflect any clear pattern of news leakage.

Dodd<sup>81</sup> and Asquith<sup>82</sup> identify the possible leakage of merger information during the period  $t = -20$  to -2.

### ***Cross Sectional Regression Analysis: Acquisitions***

It is often stated that if bidders gain from acquisitions, the gain will be more noticeable if the target is large in relation to the bidder so that bidder returns should be positively related to the relative size of the target. The bidder returns increase with the logarithm of the ratio of

target to bidder equity for a sample of mergers<sup>83</sup>.

It is argued that as a bidder's debt increases, the bidder's management is more closely monitored by its creditors and it has less cash to spend. Hence bad acquisitions are less likely. Bidder returns increase with the bidder's leverage<sup>84</sup>. The bidder returns are larger for high q bidders and low q targets<sup>85</sup>. The bidder returns increase with earnings based performance measures<sup>86</sup>.

The free cash flow hypothesis posits that cash flow increases the agency costs of firms with poor investment opportunities. It assumes that the management values investments in operations more than investments in financial assets. This may be because management perquisites increase with investments in operations even when these investments have a negative net present value (NPV). So once management has exhausted positive NPV projects, it proceeds to invest in negative NPV projects, rather than pay out funds to shareholders. Tobin q is a measure which proxies a firm's investment opportunities. To the extent that Tobin q measures investment opportunities, the free cash flow hypothesis suggests that firms with high cash flow and low q are more likely to engage in acquisitions that do not benefit shareholders. The shareholder wealth effect of acquisitions is proportional to their NPV. Hence, cross sectionally, the free cash flow hypothesis implies that bidder's abnormal return is negatively related to the cash flow of firms with poor investment opportunities and unrelated to the cash flow of firms with good investment opportunities<sup>87</sup>.

It is expected that bidders with substantial cash flow and a low Tobin q experience the lowest abnormal returns since those are the firms that have greatest agency costs of free cash flow.

The determinants of acquiring firms' shareholder value involved in M&A are examined through cross sectional regression analysis. The three day excess cumulative abnormal returns are cross sectionally regressed upon variables of relative size, growth potential, earnings based performance, and financial leverage.

The general regression model is specified as

$$\begin{aligned} \text{CAR} = & \alpha + \beta_1 \text{CFTA} + \beta_2 \text{CFBVE} + \beta_3 \text{LATA} + \beta_4 \text{DER} + \\ & \beta_5 \text{LTTA} + \beta_6 \text{TOBINQA} + \beta_7 \text{ROI} + \beta_8 \text{PB} + \\ & \beta_9 \text{HQ} + \beta_{10} \text{HCFAHQ} + \beta_{11} \text{HCFALQ} + \\ & \beta_{12} \text{HCFBHQ} + \beta_{13} \text{HCFBLQ} + \beta_{14} \text{RSB} + \\ & \beta_{15} \text{RSM} \end{aligned}$$

### *Determinants of Acquiring Firm Shareholder Wealth*

The results of ordinary least square (OLS) regression of changes in acquiring firms' shareholder wealth involved in acquisitions and mergers are given below. The dependent variable is the cumulative market model adjusted abnormal returns (CAR) for the interval -1 to +1 day relative to the acquisition or merger announcement. The variable values are for the period (-1), the year before the announcement of the acquisition or merger. The performance variable CFTA represents the ratio of cash flow to the book value of total assets. Cash flow is measured as earnings before interest, taxes, depreciation, and amortisation. The variable CFBVE represents the cash flow deflated by the book value of equity. LATA represents the ratio of liquid assets to the book value of assets. Liquid assets are measured as the sum of cash and marketable securities of the acquirer in the year before announcement of the event (merger or acquisition).

The ratio of total debt to equity (DER) and long term debt to total assets (LTTA) represent the measures of financial leverage of the acquirer firm in the year before event announcement. The variable PB signifies the ratio of market price to book price of the acquirer firm in the year preceding the acquisition or merger announcement. The variable TOBINQA represent the Tobin q ratio of the acquirer firm in the year before the announcement of the event. The Tobin q is estimated as the ratio of the firm's total market value of assets (book value of assets + market value of common equity – book value of common equity) to its total book value of assets. PB can be considered as a proxy for Tobin q. ROI is the return on investment of the acquirer firm in the year before the event. Tobin HQ represents a dummy variable which takes the value one if the bidding firm's Tobin q value is greater than one. HCFAHQ is a dummy variable which signifies the interaction of high cash flow based on total assets and high Tobin q ratio for the bidding firms. This explanatory variable takes a value of one if the acquirer has high cash flow and Tobin q greater than one. A firm is assumed to have high cash flow if its cash flow is above the median in the sample. The HCFALQ dummy variable represents the interaction between high cash flow based on total assets and low Tobin q value for the bidding firms. HCFBHQ is a dummy variable which signifies the interaction of high cash flow based on book value of equity and high Tobin q ratio for the bidding firms. The HCFBLQ dummy variable

represents the interaction between high cash flow based on book value of equity and low Tobin q value for the bidding firms. All variable values are for the year preceding merger or acquisition announcement. TOBINQT represents the Tobin q value of the target firm in the year before the event announcement. RSB and RSM represent the relative size of the target to the acquirer in terms of book value of equity and market value of equity measured in the year before the event of acquisition or merger.

The results of the cross sectional regression analysis of acquiring firms have been summarised in Exhibit 10.

### *Regression Results: Acquisitions*

Altogether six models were used in the cross sectional regression analysis of bidders' cumulative abnormal returns. The regression analysis for models 1–5 was based on a sample of 252 bidders. The sample size for the sixth regression was truncated to 30 due to non availability of data for target firms which were required for the variables of relative size.

On the basis of model 6, it is found that bidders' returns are positively related to the relative size of the target on the basis of book value of equity. At the same time bidders' returns are negatively related to the relative size of target measured by the market value of equity. But both the results are not statistically significant.

It is observed that in accordance with the free cash flow hypothesis, the bidders' abnormal returns are negatively related to the interaction dummy variable of high cash flow and low Tobin q. The bidders' abnormal return is negatively related to both the dummy variables of HCFALQ and HCFBLQ. Thus bidder's abnormal returns are negatively related to the cash flow of firms with poor investment opportunities. But the results are not statistically significant.

The acquirers' abnormal returns are positively related to the cash flow of firms with good investment opportunities. The cumulative abnormal returns are positively related to the interaction variables (HCFAHQ and HCFBHQ) which are representative of firms with high cash flow and high Tobin q. The results are not statistically significant.

Bidders' returns are positively related to leverage measured by the debt equity ratio on the basis of results in models 1, 3 and 4. Bidder returns are also positively related to high q bidders. Acquirers' abnormal returns are negatively related to the variables of return on investment and price to book ratio. The results are not statistically significant.

### *Cross Sectional Regression Analysis: Mergers*

The determinants of the shareholder value of acquiring firms involved in mergers are examined through cross sectional regression analysis. The three day excess cumulative abnormal returns are cross sectionally regressed upon variables of relative size, growth potential, earnings based performance, and financial leverage.

The results of the cross sectional regression analysis of firms involved in mergers have been summarised in Exhibit 11.

### *Regression Results: Mergers*

The cash flow variable based on book value of equity is positively related to the abnormal returns of acquirers involved in mergers. However the cash flow variable based on total assets is negatively related to the acquirer's abnormal returns. Both the leverage measures of long term debt to total assets and debt to equity ratios are negatively related to the cumulative abnormal returns of the acquirers. The liquidity variable of liquid assets to total assets is negatively related to the bidder's excess returns. Tobin q ratio and the market to book ratio are also negatively related to the bidder's abnormal returns. The interaction dummy variable of high cash flow and high investment opportunities based on both the total assets and book value of equity is negatively related to the acquirer's abnormal returns. At the same time the interaction dummy variable of high cash flow and low investment opportunities based on total assets is positively related to the acquirer's abnormal returns. The interaction dummy variables signifying low cash flow and low investment opportunities are positively related to acquirer firm's abnormal returns. The Tobin q ratio of target firms is positively related to the acquirer's abnormal returns. The relative size of target based on book value of equity is negatively related to the acquirer's abnormal returns whereas the variable of relative size of target based on market value is positively related. The results are statistically insignificant. Models 1 to 5 are based on 165 mergers and model 6 is based on a very low sample of 14 mergers. The sample size was truncated due to non availability of data. One additional dummy variable of low cash flow and low growth potential proxied by Tobin q was included in the regression on mergers.

### *Comparative Results*

On a comparative basis it is observed that in the case of acquisitions the bidder's return increases as the relative size of the target based on book value of equity increases,

## Exhibit 10 Results of Cross Sectional Regression Analysis: Acquisitions

	1	2	3	4	5	6
Intercept	0.02 (0.512)	0.027 (1.42)	0.027 (0.855)	0.020 (0.742)	0.003 (0.081)	0.005 (0.18)
CFTA	0.045 (0.320)	0.013 (0.189)		0.003 (0.046)	0.073 (0.54)	
CFBVE	-0.045 (-0.29)		-0.002 (-0.026)		-0.089 (-0.62)	
LATA	-0.040 (-0.54)	-0.016 (-2.32)	-0.034 (-0.047)	-0.021 (-0.29)		
DER	0.014 (0.166)	-0.007 (-0.099)	0.027 (0.33)	0.013 (0.15)		
LTTA	-0.077 (-1.09)				-0.071 (-1.03)	
TOBINQA	0.042 (0.537)	0.011 (0.159)	0.006 (0.083)			
ROI	-0.017 (-0.17)		0.06 (0.79)	-0.006 (-0.065)		
PB	-1.00 (-1.06)			-0.092 (-1.14)		
HQ	0.044 (0.45)				0.075 (0.802)	
HCFAHQ	0.08 (0.86)			0.069 (0.822)	0.069 (0.769)	
HCFALQ	-0.06 (-0.65)		-0.05 (-0.74)	-0.49 (-0.55)	-0.057 (-0.62)	
HCFBHQ	0.103 (0.99)			0.067 (0.81)	0.112 (1.14)	
HCFBLQ	-0.003 (-0.030)			-0.002 (-0.02)	-0.013 (-0.145)	
TOBINQT						0.012 (0.05)
RSB						0.24 (1.04)
RSM						-0.27 (-1.15)
R <sup>2</sup>	0.029	0.022	0.077	0.02	0.022	0.086
F	0.932	0.027	0.22	0.487	0.483	0.62

The CAR for the time period -1 to +1 days was regressed on the variables of performance measures, leverage, size and dummy variables of growth potential, interaction variables of cash flow and investment opportunities

## Exhibit 11 Results of Cross Sectional Regression Analysis: Mergers

	1	2	3	4	5	6
Intercept	0.065 (2.38)	0.044 (2.75)	0.035 (1.67)	0.048 (1.96)	0.049 (1.84)	0.036 (0.89)
CFTA	-0.16 (-0.97)	0.019 (0.18)		-0.11 (-1.001)		
CFBVE	0.004 (0.033)		0.046 (0.39)		0.006 (0.074)	
LATA	-0.037 (-0.388)	-0.15 (-0.17)	-0.11 (-0.12)		-0.15 (-1.61)	
DER	-0.096 (-0.89)	-0.13 (-1.24)		-0.13 (-1.46)		
LTTA	-0.14 (-1.62)		-0.13 (-1.3)			
TOBINQA	0.16 (1.19)	-0.11 (-1.2)		-0.005 (-0.41)	-0.05 (-0.55)	
ROI	0.18 (1.45)	-0.11 (-1.20)	0.024 (0.24)		0.001 (0.008)	
PB	-0.27 (-2.25)**		-0.12 (-1.39)			
HQ					-0.13 (-1.44)	
HCFAHQ	-0.087 (-0.52)		-0.18 (-0.16)			
HCFALQ	0.11 (0.65)		0.10 (0.69)	0.089 (0.99)		
HCFBHQ	-0.03 (-0.22)		-0.08 (-0.60)			
HCFBLQ	0.076 (0.52)		0.09 (0.69)			
LCFALQ	0.048 (0.38)		0.078 (0.71)	0.09 (0.96)		
TOBINQT						02 (.05)
RSB						-.33 (-0.23)
RSM						0.38 (0.26)
R <sup>2</sup>	0.103	0.022	0.067	0.039	0.047	0.015
F	1.17	0.64	1.005	1.15	1.18	.036

\*\* Statistically significant at 5%

The CAR for the time period -1 to +1 days was regressed on the variables of performance measures, leverage, size and dummy variables of growth potential, interaction variables of cash flow and investment opportunities

and the bidder's returns decreases as the relative size of target based on market value of equity increases. This observation is reversed in the case of the abnormal returns of acquirers involved in mergers. The abnormal returns of acquirer firms involved in acquisitions are negatively related to performance measure variable of cash flow based on book value of equity. The abnormal returns of acquirer firms involved in mergers are positively related to performance measure variable of cash flow based on book value of equity.

The liquidity measure of liquid assets to total assets is negatively related to bidders' returns both in the case of acquisitions and mergers. On the basis of results in models 1, 3 and 4, as the bidders leverage measure based on debt equity ratio increases, the abnormal returns also increases with respect to acquisitions. But in the case of mergers, it is observed that as the bidders leverage measure based on debt equity ratio decreases, the abnormal return increases.

In the case of acquisitions the growth potential of bidders proxied by Tobin q is positively related to the bidder's returns. At the same time the Tobin q ratio of the bidders involved in mergers is negatively related to the cumulative abnormal returns.

In the case of acquisitions, the cumulative abnormal returns of bidding firms are positively related to the cash flow of firms with high investment opportunities. The abnormal returns are found to be negatively related to the cash flow of firms with low investment opportunities.

With respect to mergers, the results are the opposite. The abnormal returns are negatively related to cash flow of firms with high investment opportunities and positively related to cash flow of firms with low investment opportunities. But the study does not provide enough

statistical significance for the above observations.

The highest average excess day return on the announcement day for the entire category of samples is presented in Exhibit 12.

## Conclusion

This study aims to find out whether the gains to acquirer or target firms involved in a merger or an acquisition are capitalised early in the programme. The study further analyses the gains for the acquirer and target firms involved in M&A on a comparative basis. The sample of firms is divided into four subsets of firms consisting of acquirers and targets involved in M&A.

The study finds that there are positive abnormal gains for the firms involved in M&A in the immediate period surrounding the M&A announcement. The average announcement day excess returns were highest for target firms involved in merger, followed by acquirer firms involved in mergers. Then the next higher gains were for the acquirer firms involved in acquisition. Consistent with the capitalisation effect, the excess return of 3.24% was highest and largest for target firms of the merger process.

The cumulative abnormal gains were higher for acquirer firms compared to target firms in all time windows surrounding the acquisition announcement. On the contrary the cumulative abnormal gains were higher for target firms compared to acquirer firms in all time windows surrounding the merger announcement.

The analysis of the abnormal gains on the announcement day indicates that the target firms involved in merger announcements had the maximum gain of 3.24% with statistical significance at 10% level. The acquirer firms involved in mergers had a gain of 1.59% with statistical significance at levels. Comparatively the gains for acquirer and target firms involved in acquisitions were lower on the announcement day.

An analysis of different time windows also confirms that the gains for target firms involved in mergers were greater than that of other events.

A comparative analysis of the acquirer firms of acquisitions versus acquirer firms of mergers reveals that the abnormal gains were greater for merger acquirers. The two-day excess returns for acquirers involved in acquisitions were 1.39% compared to 1.59% gain of acquirers involved in mergers. The three-day average cumulative excess return

### Exhibit 12 Highest Average Excess Day Return on Announcement Day (0 Day) for the Entire Category of Samples

Event	Abnormal gains in %	t-statistics
Target (Mergers)	3.24	1.88*
Acquirer (Mergers)	1.59	3.40***
Acquirer (Acquisitions)	0.82	2.61**
Target (Acquisitions)	0.039	3.19***

\*\*\*, \*\*, \* indicate significance level at 1%, 5%, and 10% respectively

for the acquirers involved in acquisitions was 1.15% compared to 1.79% of merger acquirers. In fact the acquirer firms involved in mergers had all positive abnormal gains in different time window periods except in the -60 to +60 day period. But the abnormal returns of the acquirer firms involved in acquisitions showed negative gains in the longer time window periods of -60 to +60 day, -20 to +20 day, -15 to +15 day and in -10 to +10 day. Only during the shorter time period of -5 to +5 day, -3 to +3 and -1 to +1 day did the acquirer firms of acquisition have positive abnormal gains.

A comparative analysis of the abnormal gains of target firms involved in M&A reveals that the abnormal gains for target firms of mergers was manifold times higher than that of targets of acquisitions.

In summary, the study finds statistical evidence for the observation that firms involved in mergers have greater wealth gain compared to firms involved in acquisitions.

The results of the study are consistent with efficient capital market hypothesis, abnormal gains hypothesis, and wealth maximising hypothesis.

If the capital market is efficient with respect to mergers and acquisitions, then any information about the event should be incorporated instantaneously into the corresponding stock prices. The efficient capital market hypothesis states that the stock market reacts efficiently to information about a forthcoming merger. The results provide evidence for efficient capital market hypothesis. Mergers could imply gains for either the acquirer or for the acquired firms.

The stockholders of acquirer firms involved in mergers and acquisitions gain higher returns providing evidence for the abnormal gain hypothesis.

The stockholders of the target firms earn high abnormal gains from mergers. Most of the gains from mergers go to the stockholders of the acquired firms. This result may imply that these target firms are operating in a market in which they have some unique resources whose potential gains are realised at the time of merger. It can be interpreted that the acquiring firms might be in a competitive acquisitions market, but the firms to be acquired might have unique resources. The assumption that these unique resources could provide economic gains to other firms by merger might cause any abnormal return from the merger announcement to go to the target firm.

## Implications

Merger and acquisition related announcements are associated with positive share price reactions for acquired and acquirer firms involved in M&A. The results based on returns surrounding the announcement period indicate that M&A on average are value-creating activities for acquirer and target firms. Thus the results are consistent with the synergy hypothesis of M&A.

The gains are maximum for target firms involved in mergers followed by acquirer firms in mergers. This result is consistent with the hypothesis that target firms involved in mergers have unique resources, which provide synergy when combined across firms. If the firm's resources are underutilised, this information is reflected in the stock price. The expectation that the acquired firms will be more efficiently managed might have contributed to the excess abnormal returns of target firms involved in mergers. The efficient stock market hypothesis says that stock prices adjust instantaneously to new information. Mergers and acquisitions could imply gains for either the acquiring or for the acquired firms. The study provides some evidence for M&A programme which are consistent with value maximising behaviour by management.

The study also documents that stockholders of acquiring firms gain more compared to target firms in acquisitions. The pattern is reversed in the case of mergers. On a comparative basis, it could be stated that acquirers involved in mergers gain greater abnormal returns than the acquirers in acquisitions. Hence from the perspective of bidding firms, the merger process could be termed as a more value creating activity compared to the acquisition process.

In the context of news leakage of information, it can be suggested that the trading strategies involving buying shares of target firms prior to the announcement of a merger and selling them off after the merger announcement could result in profitable opportunities.

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