1.1. Mergers and Acquisitions: An Introduction

Mergers and Acquisitions (M&As) are often used as preferred tools of corporate structuring to serve a variety of business objectives. With the impressive increase in the number of M&As, there has been increased interest in the issues regarding the impact of such restructuring activities on effectiveness of businesses. A merger is popularly understood to be a fusion of two companies. It refers to the merging of one company into another or two companies getting merged to form a new company. Acquisition or takeover, on other hand, denotes a company acquiring controlling stake in another so that the acquirer can have management control over the firm. Mergers are different from acquisitions. An acquisition implies that a company unilaterally relinquishes its independence and adapts to another firm’s plans while in mergers all combining firms relinquish their independence and co-operate resulting in common corporation. In other words, corporate takeover is a corporate action where an acquiring company makes a bid for a target company. Mergers and acquisitions (M&As) as a means for inorganic growth, are increasingly being used, the world over for undertaking restructuring of leading business enterprises. It is observed as a strategy for achieving larger size and faster growth in market share and reach, and to become more competitive through economies of scale. Indian companies are also aggressively building capacities via M&As to cater to the growing domestic and global markets.

A number of studies offer evidence in support of the contention that some M&As out-perform others (see e.g. Martynova et al. 2006; Seth, Song, & Pettit, 2002). It is also observed that M&A activities have a tendency to cluster as they may be triggered by the changes in the business environment caused by economic, political or social developments (Sudarsanam, 2003). Changes in business environment may cause change in the optimal size of a firm in a given industry, which in turn may create opportunities for taking advantage of synergies by restructuring. Shleifer & Vishny (2003) argue that this can explain a substantial part of the existence of merger waves.
On the other hand, many studies offer evidence of value destruction by M&A activities. Moeller et al. (2005) conclude that shareholders of acquiring companies lost an aggregate $216 billion in the period from 1991-2001. As the M&A activity has the tendency to increase during rising markets and vice versa (Rhodes-Kropf & Viswanathan, 2004), acquiring firms face the risk of buying companies at high prices and that could also explain why there are some M&As that add value and others that destroy value. These evidences trigger a number of questions regarding the impact of M&As for the parties to the restructuring attempt. The present study focuses on the M&A among Indian companies and the response of the Indian capital market to such attempts.

1.2. M&As in India

Indian capital market has witnessed spectacular growth in Merger and Acquisition (M&A) activities since 2000. The recent rapid growth in M&A activities can be attributed primarily to the increasing need for corporate restructuring arising out of competitive shifts in business environment.

India has become an enthusiastic participant in both domestic as well as cross border M&As. The value of deals where Indian companies have been targets or acquirers has increased from $2.2 billion in 1998 to $62 billion in 2007. A study by international consultants Grant Thornton estimated that the total number of mergers and acquisitions stood at 661 in 2007. There were 313 domestic deals (both acquirer and target being Indian) with an announced value of $2.83 billion and 348 cross-border deals with an announced value of $48.34 billion. This was significantly higher than 480 deals in 2006 amounting to US$ 20.30 billion. However, 2008 witnessed a decline in both the number and value of M&A deals in India. The total number of M&A deals in calendar year 2008 was 445, with a total announced value of US$30.72 billion. Thus, the increasing trend in the value of M&A deals reversed in 2008. The total value of Indian M&A deals announced in 2009 fell to $21.20 billion. There was an increase in the M&A activity during 2010, which saw nearly 400 deals worth, announced value of USD 45 billion. However, during the calendar year 2011, M&A deals in India fell by more than 50% over the last year, as only 195 deals were announced. Even the net deal value fell to USD 18
billion. The value of mergers and acquisitions in India during the year 2012 went up to $41 billion. In India, M&A activities have been significant in financial sector, high technology, real estate, energy/power, industrial and healthcare sectors.

1.3. M&A Announcement and Market Reaction: Emerging Issues

The recent increase in M&A activity in India presents an important question for corporate strategists and investment managers: Do M&A announcements create value for the shareholders of acquirer and target companies in the short term? Are shareholders of the target and acquirer companies better off after the M&A announcement? How does the stock market react to such announcements? Are there some variables that moderate the impact of such announcements?

Mergers and acquisitions (M&As) could be an important strategic option for corporate restructuring. They are being used by companies for achieving larger size and faster growth in market share and reach, and to enhance competitiveness through economies of scale. M&A announcement, being a major event for any company, is generally expected to have significant stock market reaction. The stock market reaction may be reflected in changes in the stock characteristics such as stock prices, liquidity of the script in the market and the volatility in the prices of shares of the acquiring and target company. The mode of financing used by the company for executing the M&A transaction could also carry significant signals regarding the expectations of the strategist of the company regarding the flow of synergies in the M&A deal. This may also have impact the perception of the market regarding the company’s future performance. The present study focuses on such issues and aims at examining the relationship between M&A announcement and stock returns as well as other characteristics such as stock volatility and liquidity with reference to the M&As in Indian companies. It also aims at examining whether investment-financing strategy has any bearing on stock returns and other characteristics.

1.4. Relevance and Motivation of the Study

With a huge amount of the investment involved, it is important to examine the impact of M&A activity on various stakeholders, particularly on the shareholders. With the
increasing divorce between shareholders and management, it becomes all the more important to understand whether M&A decisions serve any purpose of the shareholders or not. Although, several studies has proved that on average target shareholders gain substantially from M&A announcement, the wealth effects of M&A announcements on shareholders of acquirer companies continue to be a matter of ongoing debate among academic researchers (e.g. Moeller et al, 2005). Moreover, the reaction of emerging markets to M&A announcement may differ from those of the mature markets, on which most of the studies in this area are based. Alexandridis et al. (2010) offer evidence in support of this contention, using a worldwide sample covering 39 countries from all continents. They also document significant differences in the abnormal return in competitive market economies (USA, UK and Canada) and the rest of the world. Thus, in emerging market economies like India, the effect of mode of payment on abnormal returns may not be similar to the one in developed market economies.

1.5. Prior Research and Rationale of the Study

Prior research on the impact of M&A on corporate performance has used a variety of performance measures including abnormal returns and accounting ratios. While the studies using abnormal returns focused on M&A announcement, the studies using accounting ratios traced the impact after implementation of the M&A arrangement. As the scope of the present study is limited to the impact of M&A announcement, the discussion here is limited to the studies that used abnormal returns as the measure of performance and excludes the measures for operating performance using, for instance, various accounting ratios.

Interestingly, the window period used in the ‘short-run’ event studies to examine the impact of M&A transactions on stock return for shareholders of both the acquirer and target companies varies considerably between studies (see Table 3.1), with some studies incorporating comparisons as much as four months prior to the bid announcement (Franks & Harris, 1989) and up to three months afterwards (Higson & Elliot, 1998). No wonder, the results of the earlier studies using abnormal returns for differing windows have offered divergent evidences, thereby adding to the confusion.
regarding impact of M&A announcements on stock returns for shareholders of acquirer and target companies.

As regards the market reaction to M&A announcement for the acquirer companies is concerned, there have been quite divergent evidences. One group of studies reported insignificant impact of M&A announcement on stock returns (e.g. Dodd, 1980; Jensen & Ruback, 1983; Franks et al., 1991; Mulherin & Boone, 2000; Choi & Russell, 2004; Megginson et al., 2004; Sudarsanam & Mahate, 2003; Goergen & Renneborg, 2004; Faccio, & Stolin, 2006; Mueller & Yurtoglu, 2007; Ma, Pagan & Chu, 2009). However, another group reported significant positive abnormal returns (e.g. Asquith et al., 1983; Dennis & McConnell, 1986; Yuce & Ng, 2005; Martynova & Renneborg, 2006; Ben-Amar & Andre, 2006; Higgins & Beckman, 2006). However, more recent studies have documented significant and negative abnormal returns for shareholders of acquirer companies (e.g. Franks, Harris & Titman, 1991, Limmack, 1991; Lang et al., 1991; Agrawal, Jaffe & Mandelker, 1992; Smith & Kim, 1994; Holl & Kyriazis, 1997; Swanstrom, 2006). Thus, there is evidence for every type of possible results.

The findings of the earlier studies were different for shareholders of target companies and acquiring companies. As regards the wealth effect of M&A on shareholders of target companies is concerned, the earlier studies suggest that they earn significantly positive abnormal returns in the days around an M&A announcements (Dodd & Ruback, 1977; Keown & Pinkerton, 1981; Travlos, 1987; Frank, Harris & Titman, 1991; Limmack, 1991; Sudarsanam et al., 1996; Song & Walkling, 2000; Goergen & Renneboog, 2004; Sehgal, Singh & Choudhary, 2005). Therefore, most of the prior empirical studies support the proposition that M&A announcements would lead to significant abnormal returns to shareholders of target companies.

Few studies have focused only a few industry segments (Van Schaik & Steenbeek, 2004; Choi & Russell, 2004; Caruso & Palmucci, 2005; Kling, 2006) and have observed that mergers may affect stock returns differently in financial companies and non-financial companies.

Other group of studies focused on different M&A activity eras such as high merger activity era and low merger activity era. These studies reported positive returns in high
merger activity era and negative returns in low merger activity era (e.g. Tse & Soufani, 2001), indicating the relationship between the wealth effect of M&A and the economic conditions.

The mode of investment financing used in M&A deals has been considered to have significant bearing on the market reaction to M&A announcement, for a number of reasons. Jensen (1986) discusses agency costs of free cash flow and argues that acquisitions financed with cash and debt will generate larger benefits than those accomplished through exchange of stocks (Jensen: 1986, p. 36). The empirical evidence also supports this arguments as Wansley et al. (1983) found that abnormal returns on M&A announcement for shareholders of target companies involved in cash acquisitions were, on an average, almost twice that in case of stock acquisitions. Similarly, Huang & Walking (1987) observed significantly higher abnormal return for cash offers for the shareholders of target companies as compared to those of stock offers, concluding that shareholders of target companies are likely to gain more from all-cash offers, than all equity or mixed offers. Travlos (1987) observed significantly lower abnormal returns for acquiring companies which used stock offers whereas acquiring companies using cash offers gained, cumulative abnormal return, though statistically insignificant. Later, the study by Brown & Ryngaert (1991) also supported these findings. Thus, the most of the empirical evidence supports the contention that shareholders of acquiring companies are likely to gain the most abnormal return from all-cash offers.

Thus, effect of mergers and acquisitions on the abnormal returns for both the acquiring and the target companies has been inconclusive and the issue whether shareholders experience a wealth effect from M&A announcements continues to be a matter of ongoing debate among academic researchers (e.g. Moeller et al., 2005).

The lack of clarity regarding the wealth effect of M&A activity underlines the need for continued research on this subject. Moreover, the prior empirical research in the area suffers from a limitation that the vast majority of studies were carried out on M&A deals in the US, Canada, and to some extent the UK and Continental Europe leaving little emphasis on M&A deals in the rest of the world (Bruner, 2004; Brealey et al:}
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2008; Sudarsanam, 2003). The reaction of the stock markets in emerging economies like India is yet to be comprehensively examined and fully understood. A few studies have been conducted covering M&A activity in India but most of them have been limited in scope and also offer diverse evidences.

It may be further noted that most of the empirical evidence on shareholder wealth effects of M&A were published in the 80s and 90s and very little evidence is available that uses data relating to 21st Century. Any study that uses the recent data is likely to improve our understanding of M&A activity from a recent perspective.

1.6. Studies in India

In India, the interest in the subject of the study is quite recent. That is perhaps the reasons for availability of only a few studies on the impact of M&As in India. The wealth of the shareholders of acquirer companies has been found to been eroded by M&A announcement by a few studies (Mishra & Goel, 2005; Sehgal, Banerjee & Deisting, 2012). In contrast a few studies observed positive abnormal returns for the shareholders of acquirer companies (e.g. Anand & Singh, 2008; Kumar & Panneerselvam, 2009).

As is evident from the above review of literature, studies conducted outside India show different results for different countries. Most of these studies have primarily focused on stock returns and only a few of them examined other characteristics such as stock volatility and liquidity. There is no consensus on the impact of M&A announcements on the stock returns, though some studies did agree with factors such as mode of financing and size of acquirer company have a bearing on post event stock returns.

It may be further noted that globally, most of the empirical evidence on shareholder wealth effects of M&A were published in the 80s and 90s and very little evidence is available that uses data relating to 21st Century. Any study that uses the recent data is likely to improve our understanding of M&A activity from a recent perspective.

The studies in India have either been limited in their scope or have taken up on limited number of sectors or used a limited their period of study. While the some of the studies on M&As in India relate to the events before 2003, most of the other studies are sector
specific such as banking sector, telecom sector, etc. The M&A scenario in India might have changed significantly since these studies were conducted. So a comprehensive study that examines the impact of M&A announcement not only on stock returns but also on other stock characteristics such as stock volatility and liquidity does seem to be needed to enhance our understanding of the subject. Moreover, the moderating impact of mode of financing on the market reaction to M&A announcement in India is also needs to be examined. The present study makes an attempt in this direction and seeks to fill the research gap.

1.7. Research Objectives

The primary objective of the proposed study is to examine the impact of M&A announcement on stock returns and other stock characteristics such as volatility and liquidity. It also attempts to examine whether mode of financing has any bearing on the post-event stock returns. More specifically, the research objectives of the study are:

a. To examine the impact of M&A announcement on stock returns in the short run for acquirer company as well as target company.

b. To examine the impact of M&A announcement on other stock characteristics such as stock return volatility and trading liquidity in the short run for acquirer company as well as target company.

c. To examine whether acquirer stock returns are conditional on the mode of investment financing used for the M&A transaction.

1.8. Research Hypotheses

The study postulated and tested the following twelve research hypotheses:

- I- “M&A announcement generates significantly abnormal returns for acquirer company after the announcement date”
- II- “Significant abnormal returns do exist for acquirer companies in the pre-announcement period”
- III- “There is a significant relationship between the pre-and post-announcement abnormal returns for acquirer companies”
IV- “M&A announcement does not have significant impact on stock return volatility of acquirer company”

V- “M&A announcement does not have significant impact on trading liquidity of the shares of acquirer company”

VI- “M&A announcement generates significantly abnormal returns for target companies after the announcement date”

VII- “Significant abnormal returns do exist for target companies in the pre-announcement period”

VIII- “There is a significant relationship between the pre- announcement and post-announcement abnormal returns of the target companies”

IX- “M&A announcement does not have significant impact on stock return volatility of target company”

X- “M&A announcement does not have significant impact on trading liquidity of the shares of target company”

XI- “The mode of financing M&A deal influences abnormal returns of acquirer company during the post-announcement period”

XII- “Pre-announcement abnormal returns exhibit different patterns for acquirer companies having different financing strategies for M&A deals.”

1.9. Period of Study, Sample Selection, Data and Sources

In order to achieve the research objectives, the study makes use of primary as well as secondary sources of data. The list of sample companies is drawn from a population comprising of all those Indian companies that went for some M&A event in the domestic market during the period 2000-2011. This information was collected from Mergers & Acquisitions Database of CMIE and Bombay Stock Exchange (BSE) publications.

The twelve years period of study (2000-2011) is chosen to ensure reasonable size of the sample. The sample consisted of M&A transactions during the period of the study, where both the acquirer and the target entity were listed companies in India and for whom the price and other information was available for a period of 121 days immediately preceding the M&A announcement and 20 days after M&A announcement. Cross border M&As were excluded.
Since the mode of financing was also important issue for the present study, only those M&A deals were included in the sample, where the percentage of shares transferred to the acquirer company was 15% or more. Initially, 148 acquirer companies and 164 target companies could be identified to have carried out M&A transactions involving transfer of 15% or more of the stake in the target company.

Non-availability of share price and other information due to re-structuring and renaming of the companies particularly the target companies restricted the size of the sample. Finally, the sample consisted of M&A transactions relating to 65 Acquiring companies and 37 Target companies.

The data comprises of daily closing adjusted share prices and trading volume of the sample companies around the announcement date. The daily data relate to trading on BSE. These data have been drawn from PROWESS - the financial database of CMIE, which is widely used in research studies in India. The data also include information about the date of first public announcement and the mode of investment financing used in the M&A deal. The data in this regard had to be taken from a variety of sources. Data regarding date of announcement was compiled from Thomson Reuters’ Data Stream and various media reports. Data regarding the M&A transactions was obtained from Thomson Reuters’ Data Stream. BSE’s Sensex has been used as the proxy for market portfolio and the data for the same was collected from BSE’s official website.

1.10. Research Methodology

Standard Event study methodology, as developed by Fama, Fisher, Jensen & Roll (1969) and Brown & Warner (1985), has been used for the purpose of this study. The event study methodology has been found to be consistent and valid for measuring the impact of any corporate event (Wooldridge & Snow, 1990) that provides signals regarding management’s expectations about the company. Capital markets react to the signals contained in the corporate events such as M&A announcement, stock splits, and earnings/dividend announcements. The studies using event study methodology need to select an appropriate ‘event window’ for the examination of share price returns and an appropriate ‘benchmark’ to calculate abnormal returns. Market return is generally used
as the benchmark return for calculating the abnormal return. Even though there is no overall consistency between the event windows chosen in existing studies, they can be broadly classified as being either short run or long run. Short run refers to days or months around the announcement of the bid, while long run refers to periods of months or years. The present study uses short run window.

As is evident from the literature review presented in Chapter 3, choice of appropriate short run window also varies considerably between studies. For the purpose of this study, the post-announcement period’s cumulative abnormal return (CAR) for each acquirer and target company is calculated as the sum of the abnormal returns over the 21 days from the initial public announcement of the bid including the date of M&A announcement. The event date labeled ‘day 0’ is the date of M&A announcement. CAR was also calculated for pre-announcement period of 20 days from -1 day to -20 day. Daily closing stock price series for the period of 141 days (day -120 to day +20) was used for computing returns. The following paragraphs attempt to describe, in brief, the methodology used in computation of cumulative abnormal return (CAR), cumulative average abnormal return (CAAR) and other stock characteristics, along with testing the values for statistical significance. The process used for each of them is described below:

(a) Computation of CAR

For the purpose of individual analysis, CAR was computed for each of the sample companies. The date of M&A announcement was labeled as ‘day 0’. Daily closing stock price series for the period of 141 days (day -120 to day +20) was used for computing returns. This daily price series is converted into daily return series using the formula:

\[ R_{i,t} = \log_e \left( \frac{P_{i,t}}{P_{i,t-1}} \right) \]  

(Eq. 1)

where \( R_{i,t} \) is the return on Day \( t \) for the stock \( i \),

\( P_{i,t} \) and \( P_{i,t-1} \) are the closing prices on days \( t \) and \( t-1 \) respectively of the stock \( i \).

In addition to calculation of \( R_{i,t} \), daily returns for the market were calculated using the daily values of BSE Sensex (market index) for the same period.
Next, we used the single factor market model (Sharpe, 1963), which relates the return of a security to the return of the market index as shown:

\[ R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \]  

(Eq. 2)

(\text{where } E[\varepsilon_{i,t}] = 0 \text{ and } \text{Var}[\varepsilon_{i,t}] = \sigma^2_{\varepsilon_i})

where \( R_{i,t} \) and \( R_{m,t} \) are the Day \( t \) returns on security \( i \) and the market index respectively.

\( \varepsilon_{i,t} \) is the zero mean error term and \( \alpha_i, \beta_i \) and \( \sigma^2_{\varepsilon_i} \) are the estimated parameters of the market model.

The single factor market model is estimated using Ordinary least squares (OLS) regression. The estimation window comprise of 100 days (day -120 to day -20). With the help of this procedure, values of \( \alpha \) and \( \beta \), for our event window (-20 to +20 days) are obtained. These estimated values of parameters are used to obtain values of expected returns for each day of event window.

The single factor market (SFM) model has been used for estimating the parameters because this is the most widely used model for estimating abnormal returns as it is considered to be simple yet robust under various circumstances (Brown & Warner, 1985). Moreover, in the Indian context, the results with multiple factor model indicated similar results as for single factor model with respect to the direction of CAAR (either positive or negative) and also in terms of significance of the results in almost all windows (Kashiramka & Rao, 2012)

Next step is to define the abnormal return for each day during the 41 days event window, which was obtained as follows:

\[ AR_{i,t} = \text{(Actual Return)}_{i,t} - \text{(Expected Return)}_{i,t} \]  

(Eq. 3)

where \( \text{(Actual Return)}_{i,t} \) is the realized return of the security \( i \) on day \( t \) and \( \text{(Expected Return)}_{i,t} \) was calculated according to equation 2 for \( R_{i,t} \).

The daily abnormal returns are computed for the pre-event window, (day -20 to day -1) and the for the post event window (day 0 to day +20).
For the purpose of analysis and drawing inferences about the impact of M&A announcement, the abnormal returns were aggregated for pre-event window and post-event window. The aggregation was carried out along 2 dimensions: through time for each stock (Cumulative Abnormal Return or CAR) and across stocks for each day (Average Abnormal Return or AAR).

The Cumulative Abnormal Returns (CARs) for the stocks were obtained as follows:

\[
\text{CAR}_i = \sum_{t=-20}^{1} \text{AR}_{i,t} \\
\text{CAR}_j = \sum_{t=0}^{21} \text{AR}_{i,t}
\]

(Eq. 4)  
(Eqn. 5)

where \(\text{CAR}_i\) and \(\text{CAR}_j\) are the pre-event and post-event Cumulative Abnormal Returns, respectively.

The CAR values were standardized as follows:

\[
\text{Standardized CAR (SCAR)} = \frac{\text{CAR}}{\text{SE}_{\text{CAR}}}
\]

(Eq. 6)

where \(\text{SE}_{\text{CAR}}\) is the standard error of CAR calculated as:

\[
\text{SE}_{\text{CAR}} = \sigma
\]

(Eq. 7)

where \(\sigma\) are the standard deviations of the abnormal returns (ARs), for the pre-event and post-event periods. Here, \(T=20\) for pre-event window and \(T=21\) for the post-event window.

The SCAR values follow t-distribution and hence, compared to t-statistic, at 5% confidence level, 2-tailed with (\(T-1\)) degrees of freedom. This procedure was used find which of the sample companies have significant abnormal returns in the pre-event and post-event windows and is used for individual analysis.

For aggregate analysis, average of abnormal returns on stocks of all the sample companies, for each day in the event window, was computed. The average for each day is called Average Abnormal Return (AAR) for that day. The AARs were cumulated for the pre-event and post-event windows to obtain \(\text{CAAR}_i\) and \(\text{CAAR}_j\) respectively. The \(\text{CAARs}\) are standardized as follows:
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\[ \text{CAAR}_i = \frac{1}{20} \sum_{t=0}^{19} \text{AAR}_{i,t} \]  
(Eqn. 8)

\[ \text{CAAR}_j = \frac{1}{20} \sum_{t=21}^{40} \text{AAR}_{i,t} \]  
(Eqn. 9)

Standardized CAAR = CAAR / SE_{CAAR}  
(Eqn. 10)

where \( SE_{CAAR} \) is the standard error of CAAR:

\[ SE_{CAAR} = \sigma_p \]  
(Eqn. 11)

where \( T \) is the number of days in the event window (20 days in pre-event and 21 days in post-event window)

\( \sigma_p \) is given by the Markowitz Portfolio formula:

\[ \sigma_p^2 = \sum_{t=1}^{T} \left[ \frac{\sigma^2_t}{n^2} \right] \]  
(Eqn. 12)

where \( n \)=number of sample companies and \( T \) is the number of days in the event window (20 days in pre-event and 21 days in post-event window)

The SCAAR values follow t-distribution and now compared to t-statistic, at 5% confidence level, 2-tailed. This allows us to find significant average abnormal returns in the pre-event and post-event windows. We also perform aggregate market analysis using CAAR methodology. However, in this case, we take the average daily abnormal returns for all the sample companies before proceeding with further estimation.

In order to examine the impact of M&A announcement on other stock characteristics, changes in the trading volume and stock price volatility were observed. For testing any changes in trading activity, the data regarding total number of shares traded each day in the event window is used. For pre-event and post event windows, the average of logarithm of the daily trading volumes are calculated for each of the sample companies.

For evaluating the significance of change in trading volume, we use the two-sample pooled t-test, equal variances, at 5% significance level.

\[ t = \frac{\bar{x}_2 - \bar{x}_1}{s_p \sqrt{\frac{1}{r_1} + \frac{1}{r_2}}} \]  
(Eqn. 13)

\[ s_p^2 = \frac{[(T_1)s_1^2 + (T_2)s_2^2]}{(T_1+T_2-2)} \]  
(Eqn. 14)

\[ df=(T_1+T_2-2) \]  
(Eqn. 15)
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Here the assumptions are that of normal populations (or $T_1 + T_2 > 40$) and independent observations and that population standard deviations, $\sigma_1 = \sigma_2$ where $\sigma_1$ and $\sigma_2$ are unknown.

- $T_1 =$ sample 1 size.
- $T_2 =$ sample 2 size
- $s_1 =$ sample 1 standard deviation
- $s_2 =$ sample 2 standard deviation

For discovering changes in standard deviation of daily returns, we use the two-sample $F$ test for equality of variances, at 5% significance level

\[
F = \left( \frac{s_1^2}{s_2^2} \right) \text{, with } s_1^2 \geq s_2^2 \quad \text{(Eqn. 16)}
\]

where $s_1$ and $s_2$ are the standard deviations of the returns for pre-event window and post-event window, respectively. The null hypothesis ($H_0$) that there is no significant change in pre-event and post-event standard deviations of average daily returns is rejected for $F > F(\alpha / 2, T_1 - 1, T_2 - 1)$.

Finally, the study evaluated if the mode of financing strategy significantly impacts stock returns. We estimate CAARs after segregating the companies in three sub-samples, on the basis of investment financing strategy used i.e. a) cash only, b) stock only and c) mixed (cash, stock and other) modes of financing. CAR for each company in the sub-sample is estimated following the procedure mentioned above. CAAR for each sub-sample is also calculated in order to make aggregate analysis, as done earlier for the entire sample for each set of acquirer and target companies.

1.1. Organization of the Study

The study has been divided into seven chapters. Figure 1.1 gives a diagrammatic representation of the organization of the thesis.

Chapter 1 introduces the context and issues, defines the research objectives, articulates the hypotheses to be tested, describes in brief the research design including period of study, sample selection, sources of data and the methodology used for data analysis. It also outlines the organization of the study.
Chapter 2 provides a theoretical framework for M&As. It offers definitions, describes the theories of M&As including the motives and discusses M&A waves along with their drivers. At the end, it articulates the perspectives of various stakeholders for M&A announcement.

Chapter 3 reviews the existing studies focusing on short-term impact of M&As on stock returns. It classifies the studies as studies abroad and studies in India and attempts to identify the research gap.

Chapter 4 presents analysis of the results regarding short run announcement effects of M&A on stock returns, volatility and liquidity on the wealth of bidder company’s shareholders. It also examines the relationship between pre-announcement abnormal returns and post-announcement abnormal returns. At the end, this chapter presents an analysis of abnormal returns during shorter windows.

Chapter 5 presents analysis of the results regarding short run announcement effects of M&A on stock returns, stock return volatility and trading liquidity on the wealth of target company’s shareholders. This chapter also examines the relationship between pre-announcement abnormal returns and post-announcement abnormal returns and abnormal returns during shorter windows.

Chapter 6 examines whether post event stock returns are conditional on the mode of investment financing used in M&As in India

Chapter 7 offers a summary of findings and conclusion and the implication of the study. It also identifies directions for future research.
Figure 1.1: Organization of Study

Chapter 1: Introduction
- Introduction, Issues, Research Objectives, Hypotheses, Data, Methodology

Chapter 2: M&As: A Theoretical Framework
- Definitions, Theories, Waves and Perspectives of stakeholders

Chapter 3: Literature Review
- Review of Studies Abroad and in India, Research Gap

Chapter 4: M&A Announcement and Shareholder’s Wealth: Acquirer Company
- Acquirer Companies: Individual Analysis and Aggregate Analysis, Relationship between CARi and CARj, impact on other stock characteristics, Abnormal Returns in different time windows

Chapter 5: M&A Announcement and Shareholder’s Wealth: Target Company
- Target Companies: Individual Analysis and Aggregate Analysis, Relationship between CARi and CARj, impact on other stock characteristics, Abnormal Returns in different time windows

Chapter 6: Investment Financing and Market Reaction to M&A Announcement
- Mode of financing and impact of M&A announcement in post-announcement and pre-announcement period, Impact during various time windows

Chapter 7: Summary of Findings and Conclusions
- Summary of Findings and Conclusions, Managerial implications and suggestions, Contributions and limitations of study, Directions for future research
References


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