

An Empirical Analysis of Corporate Restructuring and Share Price Performance in India

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Abstract

This paper presents an empirical study of the effect of mergers and acquisitions on the return of shares of acquirer and target firm. For this research, we have taken all listed companies of BSE for which merger and acquisition has taken place between 2000 and 2010. Total 80 samples are taken, among this 40 are of mergers involving 20 of acquirer and 20 of target firms, and 40 of acquisition involving 20 of acquirer and 20 of target firms. A comparative analysis of abnormal gains of target firms involved in M & A reveals that the abnormal gains of target firms of acquisition was higher than target firms of merger. In the context of news leakage of information, it can be suggested that the investment 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.

Keywords: Mergers and Acquisitions, Target firms, Acquirer firms, Abnormal gains.

JEL Classification: G30, G34, L25

1. Introduction

As in the financial parlance, the goal of any firm should be to maximize the wealth of equity shareholders; the effect on stock price is the apt and quick parameter to measure it. Similar is the case for corporate restructuring. The questions concerning the impact of a merger on the market value of merging firms have occupied a prominent position in the finance literature Kumar, Panneerselvam, (2009). Thus, creating value is the primary reason behind corporate restructuring. There are many reasons for the companies to engage in mergers and acquisitions. In some cases, company might be a good bargain for future potential benefits, while in other, one of the companies might be in financial trouble and the merger might be a way to fix their mess. Sometimes backing of a large company for small firms is needed to return to their profitability. In the case of the acquisition, the purchaser is speculating that the company will be of greater value at some future point in time. There are many financially motivated reasons for the company to choose or acquire another company. For example, large scale mergers eliminate competition and secure a greater market share. Regardless of any reason for the mergers or acquisition, one can be certain that at least one company will benefit from it.

In some cases, there may be a mutual benefit that the combined company may be more profitable. Sometimes companies are sold to provide quick cash revenue for their owners, as opposed to long term gains. There are many questions which need to be answered to conclude whether merger and acquisition is good or bad. In order to answer this question, one must consider and analyze all the parameters of both the firms in merger and acquisitions. Among them, Shareholder value creation is one of them.

This study focuses on answering the questions of whether mergers and acquisitions create a value for shareholders of both acquirers and targets.

2. Review of Literature

Indian Perspective

The study by Kumar and Panneerselvam (2010) examined the abnormal return in their paper titled, “Mergers, Acquisitions and Wealth creation: A Comparative Study in the Indian Context.” The period for the study taken was from 1998-2006. The study found that there are positive abnormal gains for the firms involved in M&A in the immediate period surrounding the M&A announcement. The cumulative abnormal gains are higher for acquirer firms compared to target firms in acquisition. On the contrary the cumulative abnormal gains are higher for target firms compared to acquirer firms in merger.

The study by Pandey (2001) titled, “Takeover announcements, open offers, and shareholders return in Target firms” examined that the takeover in particular and market for corporate control in general benefit the shareholders or not for a period of 1997-2001. The study concluded that the return of the firms continue to drift downwards, with maximum drop immediately prior to the close of offer period.

The study by Pawaskar (2001) analyzed and compared the performance of acquiring and acquired firm with that of industry average in the research paper titled, “Effect of mergers on corporate performance in India.” The period taken for the study was 1992-1995. The study found that the acquiring and acquired firms had performance below the industry average in terms of profitability. Mergers had a negative impact on profitability.

Mishra and Goel (2005) studied particularly risk and return parameter for RIL and RPL merger in their research paper titled, “Returns to shareholders from mergers: The case of RIL and RPL Merger”. The study showed that positive excess return occurred to the shareholders of the target company RPL and negative excess returns to the shareholders of the acquiring company, RIL.

The study by Ramakrishnan concluded that as far as wealth gains on merger announcement are concerned, only the shareholders of the acquired firms appear to be enjoying significant positive share price returns. The shareholders

of the acquiring firms and the combined firms do not seem to be witnessing any significant change in returns.

Global Perspective

A number of studies were done in developed capital markets of Europe, Australia, and the USA, on evaluation of corporate financial performance following mergers. Lubatkin reviewed the findings of studies that have investigated either directly or indirectly the question, “Do mergers provide real benefits to the acquiring firm?” The review suggested that acquiring firms might benefit from merging because of technical, pecuniary and diversification synergies.

The BCG (2008) Group conducted a study on “The return of the strategist creating value with M&A in downturn”. According to BCG research downturn deals have higher chances of creating values for buyers than upturn deals in fact downturn deals are twice as likely to produce long term returns in excess of 50% and on average create 14.5% more values for shareholders of acquirer.

Pazarskis and Vogiatzoglou (2006) surveyed to examine the impact of mergers and acquisitions on profitability of the firm. In their paper titled, “Exploring the Improvement of Corporate Performance after Mergers – the Case of Greece” authors concluded that there is strong evidence that the profitability of a firm that performed an M&A decreased due to the merger/acquisition event.

3. Research Methodology

Objectives

1. To study the stock market reaction to the announcement of a merger and acquisition
2. To study if merger and acquisition lead to wealth maximization of shareholders.
3. To find out whether merger and acquisition announcement leads to greater abnormal return.
4. To find how the abnormal return is shared between shareholders of acquired and acquiring firms.
5. To find whether firms involved in mergers have greater wealth gain compared to firms involved in acquisition.

Scope of the Research and Sample Selection

For this research, we have taken all listed companies of BSE for which merger and acquisition has taken place

between 2000 and 2010. We have taken only those companies for which daily share price data is available. Total 80 samples are taken, among this 40 are of mergers involving 20 of acquirer and 20 of target firms, and 40 of acquisition involving 20 of acquirer and 20 of target firms. Our research uses only secondary data. Market return was calculated from SENSEX. For each script we collected data for 1 month before the announcement of the M & A, 1 month after the announcement of the M & A took place.

Hypothesis

- I. H_0 : Merger and acquisition announcement is not immediately reflected on the stock prices of Merger and Acquisition firms.
 H_1 : Merger and acquisition announcement is immediately reflected on the stock prices of Merger and Acquisition firms.
- II. H_0 : Merger and acquisition do not lead to abnormal return for the stockholders of the firms.
 H_1 : Merger and acquisition lead to abnormal return for the stockholders of the firms.
- III. H_0 : Firms involved in mergers do not have greater wealth gain compared to firms involved in Acquisition.
 H_1 : Firms involved in mergers have greater wealth gain compared to firms involved in Acquisition.

Estimation Windows

We have compared a stock’s performance in two steady states: one before and one after the announcement of the M & A. The M & A announcement may change the market’s perception of a firm. The estimation window taken in the project for the price effect is as follows:

Sr. No.	Time period	Event Window
1	30 days before announcement date to 2 days before announcement date	From -30 to -2
2	15 days before announcement date to 2 days before announcement date	From -15 to -2
3	5 days before announcement date to 5 days after announcement date	From -5 to +5

Sr. No.	Time period	Event Window
4	3 days before announcement date to 3 days after announcement date	From -3 to +3
5	2 days after announcement date to 15 days after announcement date	From +2 to +15
6	2 day after announcement date to 30 day after announcement date	From +2 to +30

Methodology for the Research

The study uses the market model method. 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. The market model is given by

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

Where R_{mt} is the return on sensex for day t , β measures the sensitivity of the firm to market- this is a measure of risk- and ε_t is the 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 the merger bid is measured using daily stock return data to compute excess stockholder returns. These excess returns are a measure of the stockholder’s return from the new information which becomes available to the market. The daily excess return for the security is estimated by

$$XR_t = R_t - E(R_t) \tag{ii}$$

Where t =day relative to an event, XR_t = excess return on the security for the 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 .

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 return over event time. In other words CAR is defined as the sum of previous daily average residuals for each trading day.

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 maximum time window involved in this study is -30 days to +30 days.

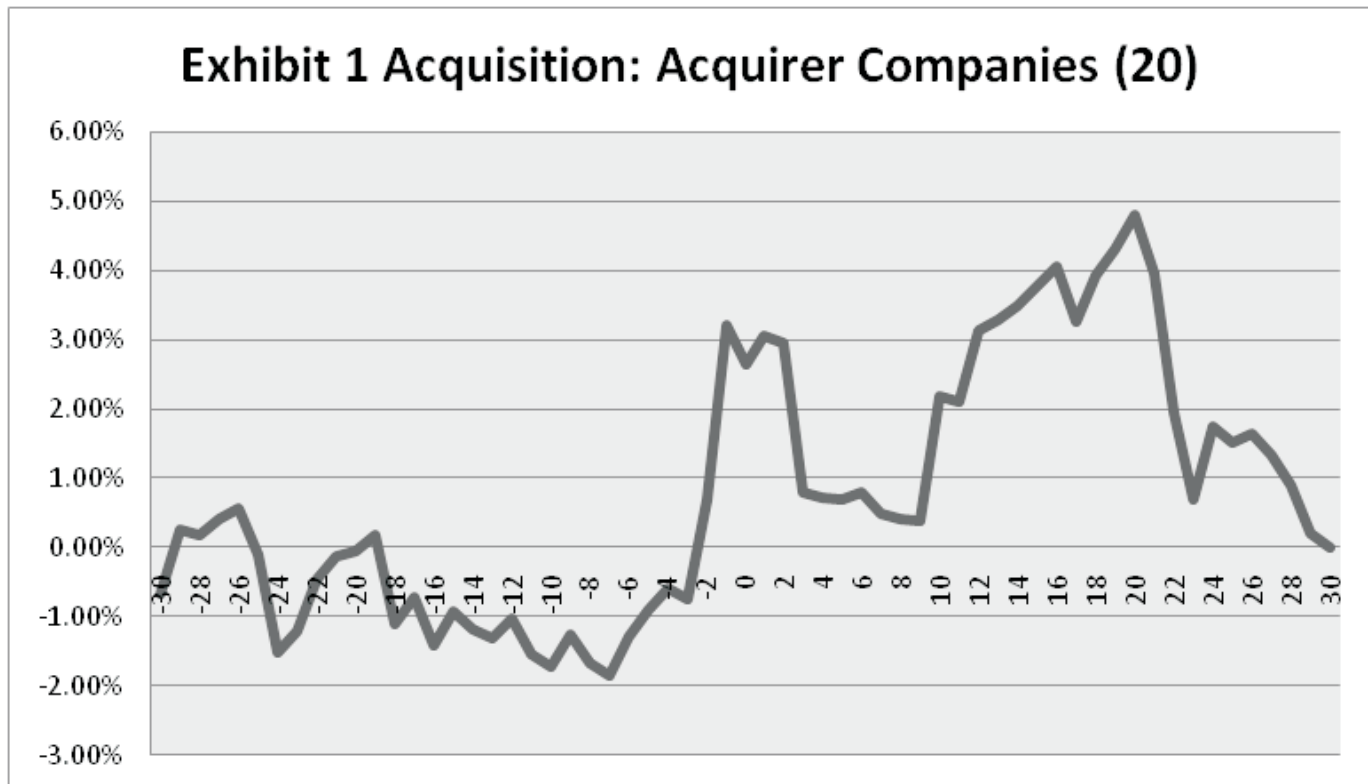
4. Analysis and Interpretation

Acquisitions

Exhibit 1 shows the graph of 20 acquirer firms' cumulative abnormal return (CAR) for the period 30 days before to 30 days after the announcement day. The graph shows

fluctuating abnormal returns in the pre announcement period. There is sharp positive increase in cumulative excess return one day before announcement period which continued one day after announcement period. This shows that stock markets react immediately to any new information. As acquirer firm shows their desire to acquire a company, shareholders see this as opportunity which leads to positive abnormal return. From the +1 day of announcement of acquisition, there has been a drastic downward movement of the abnormal returns for the acquirer firms but later it rises.

Exhibit 1 Cumulative Abnormal Return of the Acquirer Firms Involved in Acquisition

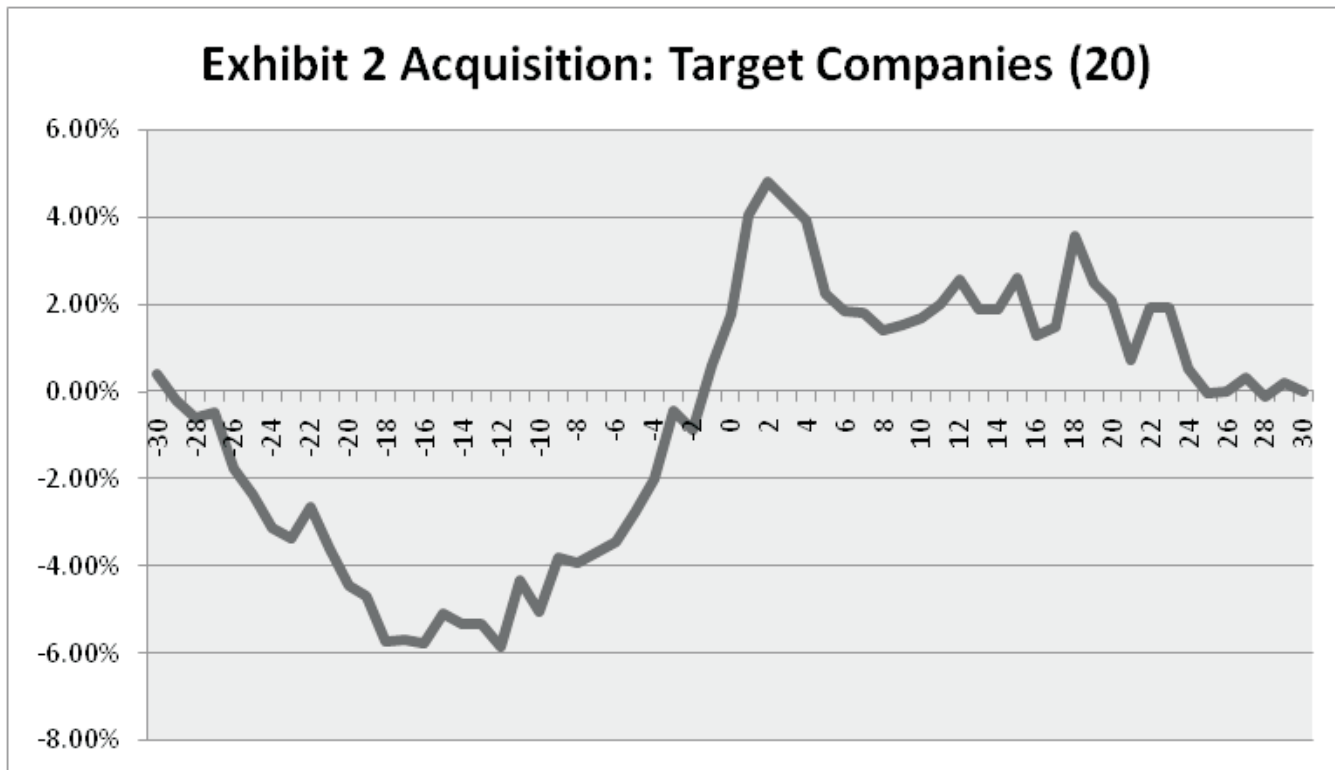


Sources: Authors' Calculation

Exhibit 2 shows the graph of 20 target firms cumulative abnormal return (CAR) for the period 30 days before to 30 days after the announcement day. CAR of target firms initially were negative but when the information for acquisition float in the market it is reflected in

sharp rise of CAR from -17 day of announcement of acquisition to +3 day of announcement. Further from +3 day of announcement the CAR starts declining. Later the abnormal return fluctuates tending first towards upward and then downward.

Exhibit 2 Cumulative Abnormal Return of Target Firms Involved in Acquisitions



Sources: Authors' Calculation

Thus there are much larger and dramatic excess returns for acquirer firms compared to target firms on the date of acquisition announcement. This pattern of some positive abnormal performance before the press day can be explained by the leakage of news about the acquisition. The CAR of both acquirer and target firms shows rapid decline during most of the post announcement period. As

is evident, CAR of target firms is in negative zone until -17 day of announcement. But later it rises reflecting 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 3 Summary Statistics of Daily Returns of Firms Involved in Acquisition

Acquired Firms		Target Firms			
Period	CAR Value	Period	CAR Value		
-30	-2	0.70%	-30	-2	-0.88%
-15	-2	2.12%	-15	-2	4.86%
-5	+5	1.99%	-5	+5	5.68%
-3	+3	1.37%	-3	+3	6.37%
+2	+15	0.70%	+2	+15	-1.44%
+2	+30	-3.05%	+2	+30	-4.07%

Sources: Authors' Calculation

Exhibit 3 presents the analysis of the daily rates of return. It identifies each event day relative to event day 0. Exhibit 3 presents the results for the acquirer and target firm’s excess returns.

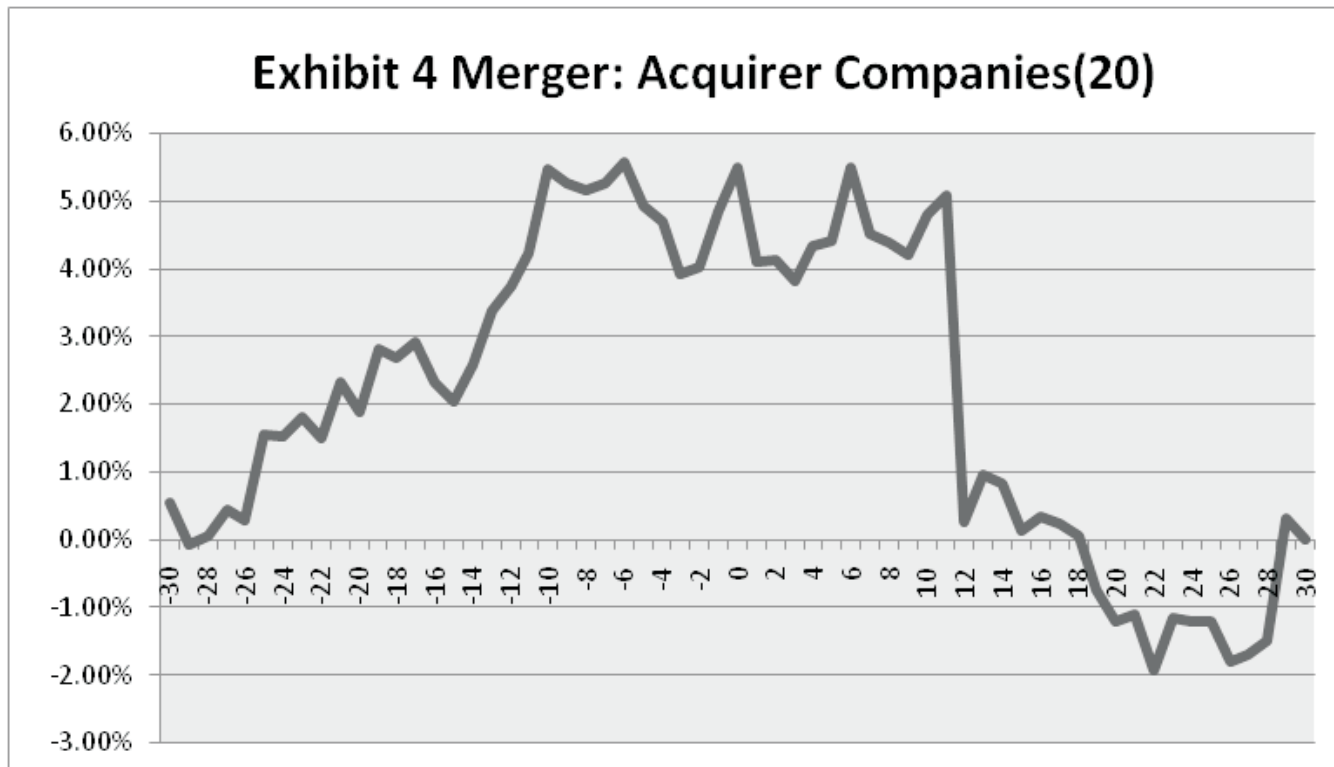
On a comparative note, it can be pointed out that the “target firms’ gain is larger than the acquirer firms’ gain”. A comparison for shorter time windows (-5 to +5, -3 to +3) reveals that the acquirer firms CAR of 1.99%, 1.37% are smaller as compared to target firms CAR of 5.68%, 6.37% respectively. Hence, it can be stated that stock market reaction is more favourable for target firms than for acquirer firms involved in acquisitions immediately around the announcement date. The cumulative abnormal return for both acquirer and target has negative CAR for post announcement period. Hence we can conclude that acquisition led to target firms shareholder’s wealth maximisation around announcement date but not

for post announcement date. The acquisition which is considered as wealth maximisation process for acquirer firm’s shareholders is not such in real sense.

Mergers

Exhibit 4 shows the graph of 20 acquirer firms cumulative abnormal return (CAR) for the period 30 days before to 30 days after the announcement day. The graph shows fluctuating gains for the acquirer firms in the pre announcement period to +11 day of the announcement period. From +11 day there is a steep decline in CAR of acquirer firms. Later in the long run it leads to negative Cumulative abnormal return. Hence merger leads to wealth maximisation of shareholders for few days around announcement period but not in long term. That is why most of the mergers are not so successful in creating value for their shareholders in long run.

Exhibit 4 Cumulative Abnormal Return of Acquirer Firms Involved in Merger



Sources: Authors’ Calculation

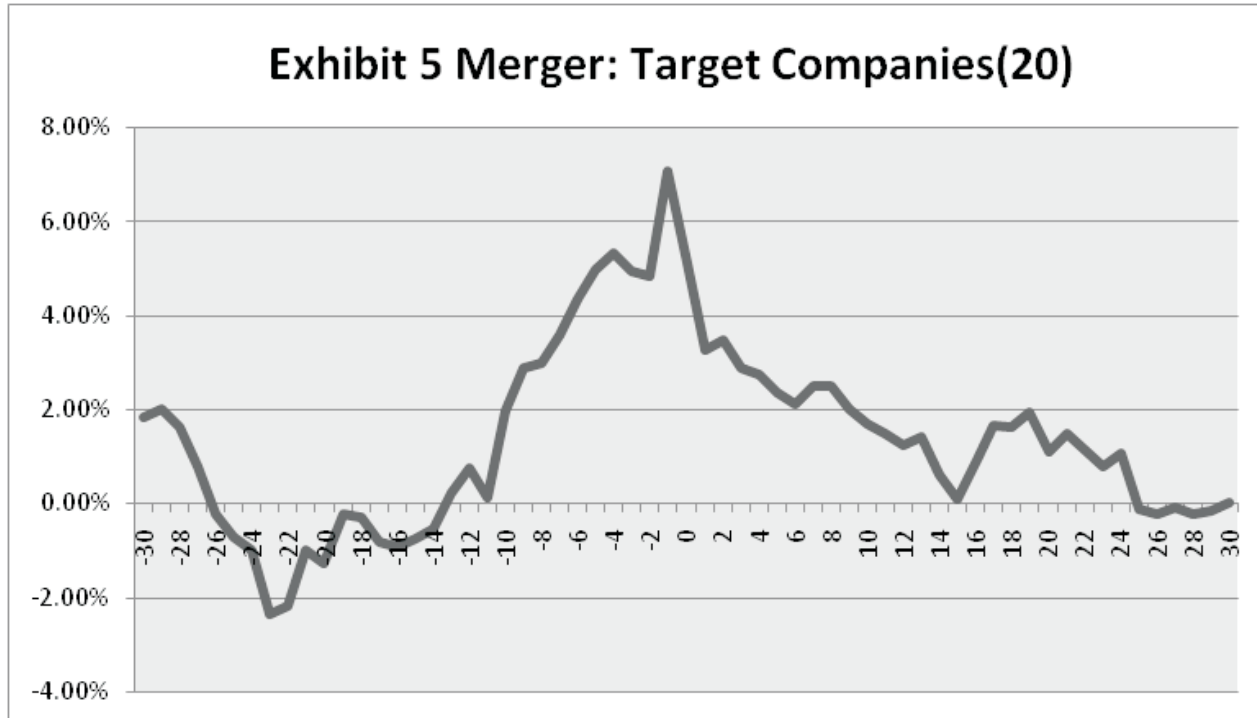
Exhibit 5 shows the graph of 20 target firms cumulative abnormal return (CAR) for the period 30 days before to 30 days after the announcement day. As it is evident from the graph the target firms react immediately to the

merger announcement showing sharp rise of CAR one day before the announcement day. This pattern of some positive abnormal performance before the press day can be explained by the leakage of news about the impending

merger. When the information for merging with target company floats in the market, target firms show rise in

CAR during pre announcement period which continues one day before announcement day but later it declines upto +16 day of the announcement period.

Exhibit 5 Cumulative Abnormal Return of Target Firms Involved in Merger



Sources: Authors' Calculation

Exhibit 6 Summary Statistics of Daily Returns of Firms Involved in Merger

Acquired Firms		Target Firms			
Period	CAR Value	Period	CAR Value		
-30	-2	4.01%	-30	-2	4.84%
-15	-2	1.71%	-15	-2	5.77%
-5	+5	-1.16%	-5	+5	-2.00%
-3	+3	-0.87%	-3	+3	-2.45%
+2	+15	-3.95%	+2	+15	-3.19%
+2	+30	-4.09%	+2	+30	-3.27%

Sources: Authors' Calculation

Exhibit 6 provides the summary of cumulative abnormal returns surrounding merger announcement dates for 20 acquirer and 20 target companies.

The cumulative abnormal return for both acquirer and target firms is positive during pre announcement period. For the shorter time window (-5 to+5, -3 to+3) target firms have much low CAR as compared to acquirer firms. This indicates that target firms react negatively to merger announcement. During the post announcement period also neither acquirer nor target firm show positive CAR. Hence shareholders of both firms who are involved in merger are not benefitted with merger.

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

Event	Abnormal Gains in %
Target (Acquisition)	1.17%
Acquirer (Merger)	0.64%
Acquirer (Acquisition)	-0.56%
Target (Merger)	-1.97%

Sources: Authors' Calculation

5. Conclusion and Findings

The study finds that there are positive abnormal gains for the firms involved in acquisition in the immediate period of the M & A announcement. The average announcement day excess returns were highest for target firms involved in acquisition, followed by acquirer firm involved in merger. Then the next higher gains were for the acquirer firm involved in acquisition.

A comparative analysis of the acquirer firms of acquisitions versus acquirer firms of mergers reveals that the abnormal gains were greater for acquisition acquirer. The three-day excess returns for acquirer involved in Acquisition were 2.36% compared to .07% gain for acquirers involved in Mergers. The five-day excess returns for acquirer involved in acquisition were 3.68% compared to .2% for acquirers involved in mergers. In fact the acquirer firms involved in acquisition had all positive abnormal return in different time windows except in the +2 to +30 day period. But the acquirer firms involved in Merger had all negative abnormal return during announcement and post announcement period. Hence from the perspective of bidding firms, the acquisition process could be termed as a more value creating activity compared to the merger process.

A comparative analysis of abnormal gains of target firms involved in M & A reveals that the abnormal gains of target firms of acquisition was higher than target firms of merger. In the context of news leakage of information, it can be suggested that the investment 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.

1. It has also found out with sudden increase or decrease in abnormal return that any information about M & A is incorporated instantaneously into the corresponding stock prices. This proves our first Null Hypothesis.
2. The study also supports the second hypothesis that M & A lead to abnormal return.

The study finds statistical evidences for the observation that firms involved in acquisition have greater wealth gain

compared to firms involved in mergers. Hence it rejects our third hypothesis.

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Annexure 1 Abnormal Return for Pre and Post Acquisition Announcement Period for 20 Acquirer companies

TIME	AB RET 1	AB RET 2	AB RET 3	AB RET 4	AB RET 5	AB RET 6	AB RET 7	AB RET 8	AB RET 9	AB RET 10	AB RET 11	AB RET 12	AB RET 13	AB RET 14	AB RET 15	AB RET 16	AB RET 17	AB RET 18	AB RET 19	AB RET 20	AVG RET	CUMM AB RET
-30	-4.39%	-1.13%	-9.28%	4.06%	0.16%	-3.37%	-3.94%	0.81%	3.49%	2.93%	0.69%	-1.81%	3.07%	0.63%	-0.75%	0.63%	-2.36%	-0.02%	-1.81%	-0.95%	-0.67%	-0.67%
-29	-1.52%	1.35%	1.17%	-1.74%	8.16%	1.74%	-2.62%	2.10%	0.07%	0.20%	-2.01%	-1.38%	0.72%	4.82%	0.22%	0.99%	0.90%	3.04%	-0.22%	2.16%	0.91%	0.24%
-28	1.92%	-0.92%	-9.13%	0.71%	-2.46%	-1.13%	2.89%	0.54%	-1.84%	-1.21%	-0.75%	0.60%	7.55%	-1.96%	4.22%	2.69%	-0.03%	-0.55%	2.06%	-4.81%	-0.08%	0.16%
-27	2.12%	0.72%	1.55%	-3.83%	-4.25%	1.09%	6.52%	-2.14%	0.99%	-1.59%	-0.44%	2.63%	-4.91%	-0.59%	1.57%	0.82%	0.56%	1.51%	1.04%	1.64%	0.25%	0.41%
-26	3.75%	3.46%	5.10%	-0.52%	-6.46%	1.66%	2.81%	1.58%	2.51%	-1.90%	0.70%	-1.20%	-13.58%	-0.77%	1.63%	3.44%	-0.67%	1.60%	-0.44%	0.18%	0.14%	0.55%
-25	-2.38%	-2.34%	3.79%	-3.96%	-1.83%	1.01%	5.10%	4.14%	-2.63%	-0.40%	-2.09%	1.22%	-8.70%	0.12%	-0.14%	2.36%	0.69%	-5.23%	-0.73%	-1.17%	-0.66%	-0.10%
-24	-2.89%	-6.53%	-10.89%	1.84%	-1.23%	1.20%	2.25%	-1.61%	-6.42%	-1.17%	1.12%	-1.25%	0.25%	-1.09%	-0.19%	3.17%	-0.83%	-3.77%	-0.45%	0.21%	-1.41%	-1.52%
-23	1.43%	-2.30%	1.54%	-1.55%	-2.92%	1.37%	0.54%	-0.22%	1.83%	-1.26%	1.57%	1.05%	6.56%	0.91%	-0.46%	-3.08%	0.87%	1.57%	-1.11%	-0.05%	0.31%	-1.20%
-22	1.32%	2.63%	1.38%	0.00%	4.27%	4.57%	1.43%	0.76%	1.73%	-0.32%	1.25%	-2.05%	1.64%	-3.75%	0.07%	-1.27%	5.46%	-3.05%	-0.53%	-0.81%	0.74%	-0.47%
-21	-5.84%	-0.99%	1.07%	2.85%	2.60%	1.83%	1.98%	0.19%	-1.84%	-3.01%	2.05%	0.05%	0.00%	2.68%	-0.41%	2.98%	3.01%	0.46%	-1.26%	-1.82%	0.33%	-0.14%
-20	-6.84%	1.45%	2.16%	3.03%	1.94%	-1.39%	-2.00%	0.13%	-0.59%	2.63%	-0.42%	1.16%	-0.69%	-2.31%	1.82%	-1.94%	0.61%	0.07%	2.45%	-1.45%	0.08%	-0.06%
-19	1.92%	-0.24%	-0.62%	4.33%	-0.86%	2.81%	-4.66%	0.91%	0.33%	2.81%	-1.88%	3.40%	-4.04%	0.16%	-3.49%	-3.45%	3.47%	1.46%	-1.77%	3.97%	0.23%	0.17%
-18	-2.36%	-3.36%	-2.30%	-2.06%	-5.54%	1.01%	0.89%	2.15%	2.92%	-2.61%	-2.61%	-2.07%	-5.91%	-2.09%	-2.62%	-3.20%	1.80%	1.73%	-2.25%	0.97%	-1.28%	-1.11%
-17	14.52%	-2.39%	-6.58%	1.80%	1.11%	1.52%	2.07%	-0.86%	-0.39%	2.72%	-2.21%	-4.62%	6.42%	-0.37%	-1.51%	-3.63%	-1.62%	0.13%	-0.55%	2.00%	0.38%	-0.73%
-16	0.65%	-3.51%	-1.20%	-3.12%	-5.54%	-2.19%	1.43%	-0.84%	-0.55%	0.74%	2.07%	1.87%	-0.26%	1.21%	-0.46%	-2.36%	-1.66%	-1.13%	-0.82%	1.74%	-0.70%	-1.43%
-15	3.53%	-3.75%	-1.09%	-0.23%	12.71%	-1.21%	-0.41%	-0.34%	-1.51%	-0.26%	-1.33%	0.32%	-1.05%	1.74%	-0.09%	-0.80%	1.09%	-0.74%	0.34%	3.22%	0.51%	-0.92%
-14	3.00%	0.56%	0.24%	-4.62%	-2.94%	-0.62%	3.83%	-0.73%	-3.53%	-0.49%	2.30%	-1.05%	2.68%	1.76%	0.65%	-4.69%	0.09%	0.43%	-1.76%	-0.66%	-0.28%	-1.20%
-13	-0.26%	-3.46%	0.55%	0.68%	0.02%	3.25%	-0.22%	-4.19%	-1.42%	-3.46%	0.15%	1.87%	-1.19%	4.10%	0.52%	0.17%	-1.48%	1.03%	-1.01%	1.81%	-0.13%	-1.32%
-12	-2.60%	-0.55%	3.82%	1.72%	3.50%	-1.24%	-0.15%	10.82%	1.00%	-1.57%	-1.43%	-0.78%	-0.57%	1.45%	-0.73%	-4.31%	1.38%	-2.66%	-0.29%	-0.89%	0.30%	-1.03%
-11	2.54%	0.77%	-6.61%	3.88%	-5.44%	-2.46%	1.31%	1.00%	2.18%	0.69%	-1.89%	-1.02%	-2.51%	1.32%	-0.17%	-4.40%	0.14%	1.06%	-1.08%	0.11%	-0.53%	-1.56%
-10	-3.14%	-0.70%	8.85%	0.28%	0.83%	-2.43%	1.43%	-1.13%	2.43%	2.15%	-7.64%	-2.25%	-2.18%	-0.89%	0.72%	-1.96%	0.67%	1.28%	-1.50%	1.76%	-0.17%	-1.73%
-9	0.80%	-0.82%	-0.82%	4.27%	-2.35%	0.63%	-0.96%	0.07%	-1.39%	0.36%	-6.81%	-1.72%	6.23%	-0.96%	5.31%	-0.99%	-0.16%	1.65%	-0.57%	-1.59%	0.48%	-1.25%
-8	0.55%	-0.47%	0.64%	2.95%	-3.07%	-0.32%	-0.15%	0.31%	-1.32%	-1.70%	-2.75%	0.82%	-0.13%	-1.06%	0.75%	0.32%	-0.64%	-1.64%	-0.96%	-0.57%	-0.42%	-1.67%
-7	-3.25%	-0.16%	-1.73%	3.05%	0.62%	1.28%	-1.85%	1.89%	0.78%	-0.76%	4.42%	-1.39%	-5.19%	-1.36%	0.86%	-2.76%	0.21%	2.02%	-1.32%	1.06%	-0.18%	-1.85%
-6	-2.12%	10.34%	2.57%	-1.32%	-2.59%	-2.51%	1.07%	-0.10%	-0.91%	1.10%	4.98%	-0.55%	2.59%	1.29%	0.52%	0.36%	-2.11%	-1.38%	1.45%	-1.58%	0.56%	-1.30%
-5	-0.90%	-0.12%	14.56%	-0.75%	6.60%	0.32%	1.79%	-0.29%	-0.07%	0.71%	-4.67%	2.68%	-1.35%	-0.87%	2.42%	-4.41%	0.16%	-4.22%	0.21%	-3.75%	0.40%	-0.89%
-4	-3.60%	-4.81%	-5.36%	3.40%	1.76%	1.44%	0.64%	-2.20%	-0.24%	0.78%	0.31%	-1.07%	13.73%	-1.66%	0.09%	-0.83%	0.46%	5.69%	-3.87%	1.46%	0.31%	-0.59%
-3	-3.27%	-5.81%	-0.50%	4.76%	-3.75%	-0.80%	1.98%	2.40%	0.19%	4.68%	-4.64%	-0.50%	6.82%	-2.59%	2.26%	-0.19%	0.73%	1.37%	-5.04%	-1.31%	-0.16%	-0.75%
-2	0.40%	-1.27%	-1.43%	2.94%	-1.98%	1.60%	1.30%	-2.81%	1.35%	5.24%	5.75%	-0.85%	1.12%	-1.47%	0.25%	8.35%	5.48%	3.27%	1.88%	-0.27%	1.44%	0.70%
-1	8.08%	-5.58%	3.84%	4.43%	6.43%	4.31%	-1.96%	0.99%	0.67%	-0.96%	5.01%	-0.83%	9.12%	-1.91%	1.04%	8.24%	5.86%	-0.53%	2.07%	1.93%	2.51%	3.21%
0	-4.53%	-4.54%	17.52%	-2.48%	-4.73%	-2.84%	-3.13%	-2.23%	2.02%	-4.09%	5.36%	-0.22%	-4.98%	1.17%	-1.82%	8.28%	-8.59%	-0.58%	1.63%	-2.51%	-0.56%	2.64%
1	3.72%	5.93%	2.17%	1.76%	-0.55%	0.99%	-0.90%	-3.05%	3.06%	-3.74%	6.05%	-0.23%	-8.20%	1.52%	1.11%	3.62%	-6.16%	0.87%	-1.00%	1.23%	0.41%	3.05%
2	4.59%	0.05%	-3.59%	-3.52%	-2.12%	-1.20%	0.07%	3.08%	-0.26%	0.09%	0.90%	-1.33%	2.22%	-0.73%	0.20%	-5.89%	-0.23%	4.44%	-0.69%	1.58%	-0.12%	2.94%
3	-3.63%	-4.76%	-8.82%	-3.03%	-4.90%	-0.72%	-2.97%	-3.31%	1.32%	-0.15%	-1.99%	-1.56%	-1.85%	1.25%	0.23%	-5.46%	-0.36%	-1.15%	-0.27%	-0.93%	-2.15%	0.78%
4	0.49%	-2.65%	3.17%	3.65%	-4.30%	2.73%	0.48%	-0.85%	-0.97%	2.14%	-0.27%	0.46%	-2.47%	0.43%	-1.25%	2.74%	-2.82%	-1.40%	0.69%	-1.22%	-0.06%	0.72%

Annexure 3 Abnormal Return for Pre and Post Merger Announcement Period for 20 Acquirer companies

TIME	AB RET 1	AB RET 2	AB RET 3	AB RET 4	AB RET 5	AB RET 6	AB RET 7	AB RET 8	AB RET 9	AB RET 10	AB RET 11	AB RET 12	AB RET 13	AB RET 14	AB RET 15	AB RET 16	AB RET 17	AB RET 18	AB RET 19	AB RET 20	AB RET AVG	AB RET CUM
-30	2.45%	0.16%	0.63%	-1.90%	-2.42%	-2.79%	0.47%	1.19%	7.70%	4.14%	-0.58%	-3.14%	0.45%	-1.53%	-0.79%	0.95%	1.86%	1.50%	-0.57%	2.98%	0.54%	0.54%
-29	-0.82%	-0.44%	-1.87%	0.69%	-0.60%	0.00%	0.70%	1.00%	0.06%	-4.89%	-3.18%	7.78%	-2.07%	-10.79%	2.18%	-0.89%	2.13%	-1.21%	-0.12%	-0.09%	-0.62%	-0.08%
-28	-0.55%	0.31%	0.72%	-1.00%	-3.60%	-0.49%	-2.68%	-2.32%	-0.55%	1.27%	8.14%	-2.63%	-1.65%	3.43%	-0.12%	1.76%	-0.30%	-1.04%	0.08%	0.13%	0.04%	0.04%
-27	0.63%	-0.28%	1.34%	-0.38%	-1.43%	-0.95%	1.11%	2.08%	4.38%	-5.10%	-1.37%	-1.53%	1.76%	10.34%	-0.05%	-0.08%	1.39%	0.04%	-2.61%	-1.40%	0.39%	0.44%
-26	-2.28%	0.06%	-1.66%	-0.18%	-3.25%	3.10%	-1.61%	1.47%	-0.28%	0.46%	-0.44%	3.86%	-0.91%	-0.37%	-1.90%	-1.22%	1.34%	-0.42%	-0.71%	1.65%	-0.16%	0.27%
-25	-2.08%	0.56%	0.41%	3.68%	5.31%	-4.95%	-1.05%	0.02%	-0.65%	3.17%	0.63%	6.42%	1.00%	8.89%	-0.49%	1.09%	6.54%	-1.94%	-1.70%	0.63%	1.27%	1.55%
-24	-7.77%	0.27%	0.88%	-2.92%	-1.22%	-0.18%	-1.72%	4.69%	1.04%	-2.35%	-0.11%	-0.27%	2.49%	9.43%	0.11%	-0.74%	0.27%	-0.81%	-1.74%	0.28%	-0.02%	1.53%
-23	7.88%	0.20%	-1.76%	0.76%	2.20%	-0.19%	0.48%	-3.03%	0.70%	2.56%	-1.02%	-0.79%	-2.48%	-0.66%	-0.27%	-0.51%	0.42%	0.97%	-0.34%	0.52%	0.28%	1.81%
-22	-0.34%	-0.71%	1.15%	-2.51%	-3.27%	-1.79%	-1.43%	8.04%	1.04%	-1.00%	2.98%	-1.10%	1.22%	-3.52%	-5.20%	-1.30%	-2.11%	1.63%	-0.94%	2.68%	-0.32%	1.49%
-21	2.57%	-0.94%	-0.68%	0.34%	-0.94%	9.82%	-0.40%	2.42%	-1.70%	0.32%	-0.22%	-2.18%	1.75%	-1.45%	4.22%	0.24%	3.11%	1.14%	-0.01%	-1.00%	0.82%	2.31%
-20	2.25%	0.75%	0.19%	-2.15%	0.09%	4.67%	0.45%	6.66%	0.35%	-2.28%	-0.92%	-2.10%	-3.49%	0.02%	-1.04%	0.07%	-8.79%	2.08%	-0.23%	-5.34%	-0.44%	1.87%
-19	-0.17%	-0.95%	0.69%	0.72%	-3.43%	-8.51%	-0.03%	-2.73%	-1.84%	-1.25%	-0.99%	16.07%	3.65%	11.92%	-0.48%	-0.83%	4.62%	-1.60%	3.48%	0.45%	0.94%	2.81%
-18	-3.92%	-0.48%	1.40%	-0.21%	-1.51%	-2.63%	2.75%	-2.16%	0.01%	1.95%	-1.43%	1.60%	-6.68%	-1.05%	0.94%	-0.21%	6.87%	2.49%	0.36%	-0.62%	-0.13%	2.68%
-17	0.77%	-0.31%	1.38%	-0.40%	-0.37%	-2.26%	3.63%	-2.66%	0.81%	0.05%	-3.71%	-1.45%	10.00%	-0.81%	0.64%	-0.07%	1.88%	-1.87%	0.82%	-1.76%	0.22%	2.90%
-16	-1.32%	-0.15%	0.25%	0.18%	2.33%	1.57%	0.74%	-0.87%	0.66%	-2.10%	-1.19%	-4.97%	-8.61%	-4.77%	0.70%	-0.49%	3.97%	-0.79%	0.06%	2.96%	-0.59%	2.31%
-15	-3.32%	0.75%	-0.24%	-1.12%	-0.67%	-0.93%	-2.12%	0.01%	3.57%	-1.39%	-0.51%	3.50%	-2.57%	-5.38%	1.89%	1.17%	1.82%	-0.07%	-0.64%	0.74%	-0.28%	2.03%
-14	2.70%	0.10%	1.51%	-3.19%	-1.00%	-0.66%	0.42%	-3.76%	5.20%	5.35%	0.30%	3.48%	-1.67%	-0.91%	1.03%	1.04%	-3.30%	1.94%	0.34%	1.88%	0.54%	2.57%
-13	1.06%	0.27%	-0.40%	0.09%	3.76%	9.15%	-0.54%	-4.48%	-1.92%	-2.28%	1.54%	7.49%	2.27%	-3.22%	-0.13%	-0.21%	3.39%	0.28%	0.26%	-0.19%	0.81%	3.38%
-12	-2.71%	0.18%	2.18%	0.63%	-1.33%	9.73%	-2.92%	6.89%	-0.39%	2.88%	-0.83%	-2.55%	-3.30%	0.81%	-4.50%	0.29%	3.65%	0.35%	-1.98%	0.14%	0.36%	3.74%
-11	7.81%	-0.14%	3.03%	-0.54%	1.83%	-2.04%	-1.46%	-1.19%	-3.27%	0.50%	2.44%	-3.06%	3.92%	0.85%	-0.78%	0.41%	2.11%	-0.05%	0.88%	-1.74%	0.47%	4.22%
-10	-3.24%	-1.39%	1.68%	8.47%	1.46%	16.01%	-1.06%	3.67%	-1.25%	-1.53%	1.37%	1.70%	-0.02%	2.32%	0.23%	-0.43%	-0.26%	-0.66%	-2.65%	0.48%	1.25%	5.46%
-9	-2.76%	-1.43%	4.55%	0.76%	-0.41%	1.85%	-2.19%	-4.95%	0.28%	2.19%	-1.86%	-3.65%	-3.68%	-0.54%	0.91%	1.33%	3.51%	0.96%	2.03%	-0.95%	-0.20%	5.26%
-8	0.68%	0.63%	2.07%	4.51%	-2.27%	-3.66%	-0.84%	4.17%	-1.32%	0.66%	0.01%	-0.34%	-2.00%	0.92%	-2.60%	2.10%	0.55%	-0.77%	-2.43%	-2.31%	-0.11%	5.15%
-7	-1.47%	-0.06%	-0.72%	-1.24%	2.61%	-2.92%	-0.10%	-1.89%	-0.16%	-0.73%	1.66%	-0.28%	1.83%	4.06%	0.15%	-0.74%	-0.92%	0.17%	3.22%	-0.32%	0.11%	5.25%
-6	-0.64%	-0.68%	3.76%	-0.31%	1.66%	-7.62%	0.62%	-1.51%	1.40%	1.16%	1.01%	-2.29%	-2.06%	-0.94%	1.79%	0.69%	4.46%	1.25%	3.17%	1.31%	0.31%	5.57%
-5	10.28%	-0.99%	-0.46%	2.82%	-4.06%	-0.63%	2.83%	0.19%	1.80%	-1.38%	-2.54%	-0.97%	-2.38%	-11.77%	-0.55%	-0.34%	-1.50%	-0.44%	-4.91%	2.10%	-0.65%	4.92%
-4	-1.71%	-1.07%	-0.48%	-2.93%	-0.07%	0.46%	-0.64%	-2.31%	-0.37%	-0.97%	0.46%	-0.11%	-2.36%	14.71%	0.95%	-0.82%	-3.59%	0.70%	-1.57%	-2.99%	-0.24%	4.68%
-3	-2.67%	-0.75%	-0.15%	-6.46%	-1.83%	-3.62%	-1.20%	-2.01%	-0.10%	0.75%	-2.71%	1.37%	-2.04%	6.57%	-1.80%	-2.05%	3.78%	1.11%	-0.75%	-0.57%	-0.76%	3.93%
-2	2.17%	0.60%	-3.59%	-0.42%	1.22%	3.78%	-2.71%	1.73%	0.30%	2.71%	-0.17%	-1.31%	0.19%	-5.42%	1.61%	-1.48%	0.56%	0.58%	-0.16%	1.55%	0.09%	4.01%
-1	2.95%	-1.66%	2.25%	7.37%	-1.20%	-6.84%	4.74%	0.92%	3.69%	-1.75%	4.69%	4.36%	-2.27%	0.99%	-1.82%	1.00%	2.11%	-1.64%	0.91%	-1.99%	0.84%	4.85%
0	-9.57%	-1.18%	4.05%	4.24%	0.38%	3.29%	3.20%	-0.32%	3.72%	0.92%	1.16%	2.25%	3.75%	-1.10%	-0.91%	-0.20%	1.13%	-2.83%	1.05%	-0.24%	0.64%	5.49%
1	-0.77%	-1.62%	-4.48%	-0.72%	1.92%	-4.11%	-2.08%	1.62%	-2.81%	-4.04%	-0.48%	-3.37%	-1.97%	-0.01%	-2.76%	0.06%	-0.43%	0.15%	-6.24%	4.00%	-1.41%	4.09%
2	2.88%	1.64%	-5.35%	-1.00%	-2.47%	3.66%	-2.67%	1.46%	-0.58%	-0.86%	-1.51%	1.64%	-2.63%	4.42%	-0.22%	-0.36%	3.84%	1.03%	-2.12%	-0.02%	0.04%	4.13%
3	-1.64%	2.00%	1.93%	-2.48%	-0.38%	-0.13%	2.01%	-1.33%	-1.64%	1.84%	-0.41%	-3.61%	-4.91%	2.49%	-1.78%	-0.54%	4.68%	-0.39%	1.82%	-3.78%	-0.31%	3.81%
4	6.40%	-0.95%	2.29%	-3.18%	3.48%	-2.43%	-1.98%	-2.72%	-1.20%	-0.68%	3.31%	0.37%	11.34%	0.06%	-4.37%	0.06%	3.74%	1.61%	-0.06%	-4.91%	0.51%	4.32%

TIME	AB RET 1	AB RET 2	AB RET 3	AB RET 4	AB RET 5	AB RET 6	AB RET 7	AB RET 8	AB RET 9	AB RET 10	AB RET 11	AB RET 12	AB RET 13	AB RET 14	AB RET 15	AB RET 16	AB RET 17	AB RET 18	AB RET 19	AB RET 20	AB RET	AVG AB RET	CUM AB RET
5	-1.45%	-0.46%	0.63%	-3.59%	-2.52%	0.91%	0.15%	-2.78%	-1.79%	0.87%	2.97%	-3.17%	9.03%	-2.35%	2.70%	-0.36%	-0.01%	1.40%	1.20%	0.27%	0.08%	0.08%	4.40%
6	1.88%	0.18%	-1.58%	2.78%	0.62%	1.10%	-0.58%	1.11%	0.34%	1.38%	5.12%	1.48%	-2.67%	1.38%	6.28%	-0.43%	0.40%	-1.37%	-1.41%	5.70%	1.09%	1.09%	5.49%
7	-7.17%	1.27%	-0.46%	-0.48%	2.89%	-1.22%	-2.72%	-2.54%	0.89%	4.64%	-1.58%	-2.22%	-5.15%	-3.21%	-3.01%	1.80%	-1.56%	-0.80%	1.01%	-0.06%	-0.98%	-0.98%	4.50%
8	-0.28%	0.77%	-0.97%	-0.08%	1.35%	-1.37%	3.54%	1.94%	-0.02%	-0.47%	-1.76%	-1.28%	3.60%	-1.90%	1.91%	-0.63%	0.89%	-0.19%	-0.12%	-7.35%	-0.12%	4.38%	4.38%
9	-7.51%	0.79%	-0.48%	-4.62%	-1.59%	-1.00%	0.43%	2.58%	-0.62%	-1.23%	3.76%	1.81%	-1.54%	-1.47%	-2.96%	-0.11%	2.02%	0.22%	2.73%	5.25%	-0.18%	4.21%	4.21%
10	4.36%	1.51%	0.95%	1.99%	-0.71%	6.21%	2.47%	-2.44%	-0.40%	1.71%	-4.02%	-1.53%	-0.47%	1.77%	1.52%	-0.43%	-0.59%	-0.83%	1.62%	-1.17%	0.58%	4.78%	4.78%
11	10.56%	1.24%	-9.47%	4.12%	0.88%	-0.08%	-0.44%	0.93%	-0.53%	-0.05%	0.11%	-0.42%	2.20%	0.46%	-0.04%	-0.10%	2.37%	-1.25%	-0.50%	-4.16%	0.29%	5.07%	5.07%
12	-4.02%	2.12%	2.33%	-1.80%	-1.34%	-1.25%	-0.63%	-0.41%	-0.50%	0.17%	0.19%	-1.66%	-2.83%	-2.68%	0.81%	0.27%	-85.67%	0.92%	-0.68%	0.42%	-4.81%	0.26%	0.26%
13	5.84%	-0.53%	-2.06%	-1.94%	1.74%	-0.70%	-0.35%	-5.03%	-0.51%	-0.94%	0.68%	-0.71%	1.38%	1.72%	-0.04%	-0.19%	0.34%	0.39%	10.88%	3.68%	0.68%	0.94%	0.94%
14	-4.11%	0.09%	-0.65%	-1.22%	0.83%	-3.52%	-0.83%	-0.09%	-0.17%	-0.12%	-0.90%	6.02%	1.64%	-1.73%	0.21%	0.14%	-1.58%	-1.34%	4.79%	0.04%	-0.12%	0.82%	0.82%
15	-1.36%	-1.38%	-0.56%	0.91%	-0.82%	-1.46%	1.78%	2.06%	0.54%	-0.77%	-2.40%	-0.10%	-0.68%	-6.45%	-3.25%	-0.32%	1.06%	1.03%	-0.39%	-1.10%	-0.68%	0.13%	0.13%
16	2.33%	0.45%	-2.72%	0.49%	-0.24%	0.74%	0.79%	0.46%	-0.38%	3.69%	-3.69%	-0.78%	-2.39%	6.33%	0.84%	0.06%	1.16%	-1.98%	-3.15%	2.22%	0.21%	0.35%	0.35%
17	-4.03%	-0.09%	0.71%	1.01%	-0.85%	-0.64%	0.51%	3.54%	0.40%	-2.13%	3.99%	-1.51%	-8.06%	-0.45%	0.91%	-0.16%	-0.28%	0.82%	1.09%	3.20%	-0.10%	0.24%	0.24%
18	-0.13%	0.48%	-0.34%	-2.36%	-0.12%	0.30%	-1.46%	-0.58%	-1.86%	0.54%	-1.26%	0.71%	6.25%	-2.20%	1.35%	0.70%	5.45%	-1.18%	-2.54%	-5.46%	-0.19%	0.06%	0.06%
19	-0.97%	-0.64%	1.42%	0.14%	0.35%	-2.91%	-2.21%	0.01%	-2.07%	-0.39%	1.78%	-2.43%	-7.74%	-1.92%	-0.31%	0.29%	3.92%	-0.18%	-1.23%	-0.93%	-0.80%	-0.74%	-0.74%
20	0.70%	-1.23%	-0.09%	-0.23%	2.45%	-4.17%	0.00%	-2.07%	-2.38%	-0.90%	-6.46%	2.42%	1.29%	-0.58%	6.30%	-1.11%	-0.43%	2.11%	-3.07%	-1.83%	-0.46%	-1.21%	-1.21%
21	-0.22%	0.84%	-0.59%	1.20%	4.37%	-1.17%	0.02%	-1.23%	-2.71%	1.75%	5.55%	-2.35%	1.94%	-1.06%	-3.10%	-0.46%	0.95%	-0.44%	-1.86%	0.41%	0.09%	-1.12%	-1.12%
22	-3.77%	0.15%	1.98%	0.52%	-4.41%	-0.92%	-1.41%	-1.53%	0.67%	-1.03%	-0.44%	-13.71%	2.06%	1.47%	-0.42%	-0.45%	4.18%	-1.34%	2.18%	-0.09%	-0.82%	-1.93%	-1.93%
23	-1.32%	-0.46%	0.10%	-0.60%	1.05%	-1.40%	1.42%	-0.29%	-1.12%	-2.87%	1.47%	-5.98%	18.02%	0.07%	2.13%	0.18%	2.54%	1.40%	-0.58%	1.90%	0.78%	-1.15%	-1.15%
24	2.59%	1.01%	-1.13%	0.59%	1.65%	0.08%	-1.04%	-2.27%	0.02%	-1.74%	0.38%	-0.47%	-10.06%	2.04%	-0.09%	0.27%	3.22%	0.39%	1.49%	1.64%	-0.07%	-1.22%	-1.22%
25	0.37%	-0.84%	-3.72%	0.93%	0.80%	-1.53%	1.35%	-1.77%	-0.65%	0.02%	3.81%	-4.24%	5.18%	-1.25%	-0.88%	-0.36%	1.95%	1.11%	-1.71%	1.90%	0.02%	-1.20%	-1.20%
26	0.46%	0.76%	0.68%	-0.92%	-0.40%	2.79%	-1.79%	-0.44%	0.31%	1.31%	-0.42%	-3.31%	0.70%	-12.56%	-2.26%	1.25%	-1.69%	-1.51%	4.44%	0.58%	-0.60%	-1.80%	-1.80%
27	-0.15%	-0.18%	0.02%	-0.57%	-1.49%	-3.23%	1.14%	1.77%	-0.33%	-0.55%	0.54%	-0.71%	1.71%	4.75%	2.90%	1.43%	-2.37%	-1.58%	0.02%	-1.32%	0.09%	-1.71%	-1.71%
28	-0.99%	-0.14%	0.52%	-0.48%	0.97%	1.08%	4.33%	4.13%	-0.01%	-0.32%	-1.80%	-0.83%	-2.21%	-0.22%	-0.16%	0.06%	-1.81%	-0.27%	1.90%	0.69%	0.22%	-1.49%	-1.49%
29	2.39%	0.60%	-0.21%	1.46%	-1.86%	12.34%	-0.22%	0.57%	-0.98%	0.85%	-0.82%	3.98%	12.18%	-3.51%	0.26%	0.54%	7.44%	-0.04%	0.44%	0.44%	1.79%	0.31%	0.31%
30	2.31%	1.38%	-0.80%	2.76%	-1.48%	-2.62%	0.84%	-3.24%	-1.03%	0.10%	-1.41%	0.05%	-8.22%	0.64%	0.07%	1.24%	3.53%	0.27%	-1.44%	0.94%	-0.31%	0.00%	0.00%

Annexure 4 Abnormal Return for Pre and Post Merger Announcement Period for 20 Target companies

TIME	AB RET1	AB RET2	AB RET3	AB RET4	AB RET5	AB RET6	AB RET7	AB RET8	AB RET9	AB RET10	AB RET11	AB RET12	AB RET13	AB RET14	AB RET15	AB RET16	AB RET17	AB RET18	AB RET19	AB RET20	AVG AB RET	CUMM AB RET
-30	0.73%	-1.21%	-2.98%	2.95%	2.18%	2.94%	0.31%	-4.18%	-3.82%	-1.79%	-1.01%	1.82%	1.58%	-2.07%	0.13%	1.04%	0.82%	3.87%	12.46%	1.82%	1.82%	
-29	-1.33%	1.25%	-0.67%	-0.40%	-1.38%	1.13%	-0.60%	-6.56%	-3.27%	0.89%	0.17%	0.34%	-1.22%	1.09%	-0.62%	-0.23%	-0.43%	0.67%	15.84%	0.18%	2.01%	
-28	1.38%	-0.82%	0.32%	-1.26%	-0.43%	-0.27%	-0.65%	0.31%	4.14%	2.28%	2.18%	-0.24%	-3.69%	-2.95%	-2.74%	-1.21%	-3.17%	4.66%	12.80%	-5.31%	-0.40%	1.61%
-27	1.95%	-1.81%	0.25%	-0.79%	0.07%	-0.72%	-3.58%	-4.35%	-1.57%	-3.51%	6.96%	-0.52%	-1.55%	0.80%	0.30%	-2.44%	0.54%	-1.87%	-1.10%	-3.66%	-0.83%	0.78%
-26	0.63%	-2.16%	0.37%	-0.73%	-0.51%	-9.01%	-0.79%	2.75%	5.16%	3.09%	2.25%	-1.39%	-3.39%	-2.44%	-3.14%	-0.02%	-2.14%	0.46%	-6.27%	-2.80%	-1.00%	-0.23%
-25	1.34%	1.64%	0.84%	0.55%	-0.33%	2.34%	1.02%	-1.78%	-1.02%	-4.23%	-2.54%	0.78%	4.75%	-1.08%	-2.37%	-1.90%	-2.37%	-1.07%	-1.62%	-3.09%	-0.51%	-0.73%
-24	0.46%	-2.60%	-0.09%	0.69%	3.52%	2.88%	-0.74%	3.02%	-4.97%	-0.60%	-3.31%	-1.83%	1.12%	3.44%	-0.29%	-0.54%	-2.11%	-5.73%	-1.80%	4.11%	-0.27%	-1.00%
-23	-1.91%	-2.44%	2.78%	-1.04%	1.79%	-3.84%	-3.79%	1.55%	-3.70%	-10.96%	-3.01%	-0.45%	-1.47%	1.43%	-3.46%	0.07%	-1.20%	0.83%	-1.56%	3.12%	-1.36%	-2.37%
-22	6.31%	-0.21%	-1.02%	1.39%	-1.50%	-1.47%	-4.28%	-4.13%	-8.31%	-6.73%	-7.36%	-0.48%	0.40%	7.90%	5.43%	-0.96%	6.51%	1.36%	0.49%	10.19%	0.18%	-2.19%
-21	-4.31%	1.73%	-4.42%	-0.05%	-0.71%	1.58%	-2.01%	0.93%	0.74%	18.07%	3.63%	-0.53%	0.97%	-3.17%	-0.75%	-4.11%	2.45%	-6.08%	7.78%	1.20%	-0.99%	
-20	-1.30%	-0.52%	0.53%	2.04%	0.33%	-3.12%	2.08%	-2.65%	2.55%	0.51%	0.04%	-0.44%	-3.27%	4.51%	-3.51%	-0.43%	2.36%	-0.79%	-2.21%	6.40%	-0.29%	-1.29%
-19	4.38%	4.86%	1.30%	0.50%	-8.15%	15.15%	2.35%	2.68%	-2.61%	0.58%	0.07%	2.21%	-0.22%	-4.08%	-1.96%	-6.22%	0.53%	4.84%	-1.76%	-1.46%	1.06%	-0.23%
-18	2.55%	-1.78%	0.20%	-2.00%	1.07%	-0.78%	-2.12%	-3.91%	0.64%	7.96%	-2.71%	-1.61%	-1.76%	-0.66%	-2.43%	0.14%	3.93%	1.02%	1.74%	-1.23%	-0.09%	-0.32%
-17	0.95%	1.69%	-0.48%	0.91%	-0.67%	-4.48%	-4.16%	-5.07%	-1.46%	2.73%	0.59%	-1.71%	-4.09%	-0.46%	2.93%	0.63%	3.39%	-1.34%	6.78%	-6.66%	-0.50%	-0.82%
-16	0.54%	-1.75%	0.78%	-1.78%	-1.02%	1.30%	4.41%	2.31%	2.40%	6.59%	0.69%	0.76%	-0.57%	-0.71%	-2.38%	1.34%	-2.29%	0.28%	-3.61%	-9.63%	-0.12%	-0.93%
-15	-0.44%	1.30%	0.50%	-8.15%	15.15%	2.35%	2.68%	-2.61%	0.58%	0.07%	2.21%	-0.22%	-4.08%	-1.96%	-6.22%	0.53%	0.38%	4.84%	-1.76%	-1.46%	1.06%	-0.75%
-14	0.40%	2.35%	-2.34%	-0.94%	9.51%	-0.79%	-3.47%	-2.77%	-5.71%	-5.64%	-3.87%	1.25%	-2.52%	0.86%	0.35%	-0.99%	0.56%	6.04%	-2.45%	14.32%	0.21%	-0.54%
-13	-1.07%	-4.33%	3.35%	0.33%	1.51%	-4.50%	1.71%	1.09%	-2.92%	12.46%	-0.14%	0.73%	3.31%	0.55%	-2.22%	-2.47%	4.14%	6.48%	0.48%	-3.01%	0.77%	0.23%
-12	1.13%	1.41%	-0.32%	4.63%	-0.95%	5.54%	-1.41%	0.10%	6.63%	-0.63%	-1.33%	-1.60%	0.91%	-1.27%	-3.56%	-0.94%	2.77%	0.51%	-3.99%	2.56%	0.51%	0.74%
-11	-1.09%	3.55%	-1.29%	-1.38%	-6.83%	-2.51%	1.36%	-0.21%	6.15%	-7.45%	0.50%	-0.33%	2.12%	0.46%	1.06%	3.81%	0.80%	-8.01%	-7.04%	3.77%	-0.63%	0.12%
-10	-0.50%	0.30%	6.71%	-0.35%	-1.17%	-1.87%	0.46%	0.17%	5.28%	6.86%	0.96%	1.52%	3.28%	-1.18%	13.73%	4.32%	2.77%	-12.84%	5.03%	3.39%	1.84%	1.96%
-9	2.95%	7.33%	7.32%	4.61%	2.95%	2.93%	-0.84%	8.91%	4.69%	-10.02%	3.26%	-1.82%	-1.38%	-1.13%	-7.17%	0.15%	-4.42%	5.56%	-2.40%	-2.88%	0.93%	2.89%
-8	-0.69%	10.08%	0.98%	1.23%	-0.89%	0.55%	-3.95%	3.29%	3.09%	-0.50%	-0.68%	0.21%	1.57%	-0.50%	-3.56%	-4.87%	-1.17%	3.34%	-2.23%	-3.22%	0.10%	2.99%
-7	1.24%	-6.18%	0.71%	-3.55%	0.92%	-0.36%	-2.31%	7.86%	3.90%	6.71%	-1.29%	0.80%	2.47%	-0.07%	-3.40%	4.28%	-0.02%	-0.04%	-1.76%	1.59%	0.57%	3.57%
-6	0.44%	-4.78%	-1.47%	-0.10%	4.81%	-0.87%	-3.07%	10.24%	6.70%	-2.46%	-5.50%	1.58%	0.20%	0.84%	-1.98%	-3.52%	-1.94%	-2.56%	19.14%	-0.02%	0.78%	4.35%
-5	0.68%	-0.73%	1.18%	-0.55%	0.07%	2.24%	-2.82%	-4.84%	0.02%	-1.85%	-4.10%	3.14%	4.77%	-1.16%	-4.52%	-7.00%	-0.37%	8.75%	18.92%	0.83%	0.63%	4.98%
-4	-2.78%	-3.10%	-1.12%	7.52%	-0.75%	-2.00%	2.26%	7.56%	4.29%	-0.80%	5.58%	-1.33%	0.38%	-1.14%	-2.08%	2.42%	-0.66%	-1.15%	-8.94%	2.48%	0.33%	5.32%
-3	3.18%	0.10%	-4.23%	-0.75%	0.80%	-3.00%	2.43%	-3.43%	5.66%	-2.39%	-1.79%	0.43%	-5.00%	1.29%	-1.29%	-0.65%	-0.79%	2.92%	2.70%	-3.80%	-0.38%	4.94%
-2	-0.07%	2.68%	-0.73%	-3.31%	0.14%	19.03%	0.08%	-5.20%	2.02%	-4.46%	-1.83%	-4.16%	-4.02%	-1.60%	2.08%	7.02%	-4.20%	3.89%	-6.94%	-2.35%	-0.10%	4.84%
-1	-1.33%	-1.97%	-3.08%	-0.88%	-1.22%	19.20%	0.38%	-3.38%	3.91%	11.13%	-1.98%	-3.80%	0.70%	13.70%	18.12%	-1.30%	-1.85%	-5.14%	-0.02%	3.41%	2.23%	7.07%
0	-9.84%	-1.12%	-2.53%	2.79%	-26.78%	-3.05%	-2.46%	-1.68%	-1.32%	-0.49%	0.79%	-0.19%	2.26%	4.71%	18.24%	0.05%	1.97%	-5.36%	0.71%	-16.13%	-1.97%	5.10%
1	-5.48%	-0.99%	3.35%	-1.19%	-2.32%	-9.17%	3.99%	-0.11%	-0.27%	-9.73%	-4.92%	8.45%	-2.41%	-0.61%	8.13%	-8.09%	6.98%	-2.18%	-1.78%	-18.25%	-1.83%	3.27%
2	-6.89%	-0.49%	0.22%	-0.87%	0.02%	-1.45%	5.40%	-4.24%	3.23%	0.31%	-2.31%	4.45%	4.43%	-1.44%	8.16%	-0.10%	3.11%	0.97%	-2.02%	-6.50%	0.20%	3.47%
3	3.16%	5.29%	-0.25%	-0.16%	-1.86%	-0.16%	-3.66%	-2.19%	0.83%	0.50%	-9.31%	-1.76%	0.99%	-3.91%	8.15%	-1.00%	-1.30%	-0.89%	-5.62%	1.13%	-0.60%	2.87%
4	1.43%	0.39%	-1.21%	-2.31%	-0.74%	-0.37%	4.11%	6.21%	1.19%	-3.71%	5.51%	-0.58%	-1.51%	1.65%	-2.27%	-0.70%	-5.08%	-3.48%	-4.80%	3.79%	-0.12%	2.74%

5	0.15%	0.70%	0.13%	1.66%	-2.25%	0.03%	-4.20%	3.00%	-2.15%	2.62%	2.06%	0.48%	-4.62%	-1.12%	0.72%	1.93%	-0.62%	-1.24%	-2.46%	-2.65%	-0.39%	2.35%
6	-0.25%	-2.13%	0.37%	-1.21%	0.52%	-0.48%	5.04%	-1.31%	0.88%	4.14%	-1.45%	-0.38%	-0.52%	-0.55%	-1.55%	-1.05%	1.52%	-5.54%	-0.66%	-0.49%	-0.26%	2.10%
7	-0.28%	-1.20%	1.11%	-0.82%	3.62%	3.41%	-3.29%	0.25%	-2.41%	-2.25%	14.26%	1.49%	-0.70%	-1.21%	0.18%	-0.20%	-3.27%	-0.08%	-3.35%	2.33%	0.38%	2.48%
8	1.42%	-1.65%	0.56%	-2.77%	0.33%	-1.38%	-4.16%	-0.80%	-1.93%	-0.13%	2.82%	0.04%	-0.64%	0.70%	-0.45%	3.84%	-1.10%	3.75%	-0.48%	2.16%	0.01%	2.48%
9	2.30%	4.82%	-2.18%	0.38%	-0.47%	1.13%	-4.35%	2.83%	-0.99%	1.04%	-2.95%	-0.35%	-0.87%	1.35%	-4.75%	-1.24%	1.37%	0.24%	-0.87%	-5.72%	-0.46%	2.02%
10	-0.45%	1.24%	1.28%	-4.06%	-0.57%	0.88%	-2.71%	-0.30%	0.76%	2.55%	2.30%	-1.87%	3.37%	0.55%	-1.94%	0.10%	-3.52%	-5.75%	-1.19%	2.80%	-0.33%	1.69%
11	-4.13%	2.79%	0.29%	1.96%	-0.52%	0.60%	-4.29%	5.05%	0.19%	-0.46%	-0.56%	-1.70%	-0.59%	0.77%	-0.57%	-1.58%	-3.06%	2.77%	-0.17%	-1.07%	-0.21%	1.48%
12	-1.26%	2.33%	1.11%	-1.16%	-0.32%	-0.69%	-3.89%	-1.98%	-1.88%	3.20%	0.47%	0.79%	0.71%	-0.15%	-0.41%	0.65%	-0.91%	-2.39%	-1.31%	2.43%	-0.23%	1.25%
13	-0.58%	5.96%	1.06%	2.61%	-0.70%	-1.24%	-1.30%	0.02%	0.79%	-3.36%	0.19%	1.08%	-0.92%	-2.31%	-4.20%	2.22%	-2.65%	1.41%	2.82%	2.42%	0.17%	1.41%
14	0.94%	-3.89%	-1.48%	-2.30%	-0.48%	-0.50%	-2.61%	0.67%	-4.08%	-1.24%	3.07%	0.37%	3.03%	-1.36%	-4.16%	4.03%	-2.28%	0.87%	-1.98%	-3.07%	-0.82%	0.59%
15	0.07%	-4.54%	-0.57%	-2.18%	0.03%	-0.59%	-2.10%	1.35%	-4.01%	-2.42%	2.89%	-0.02%	-0.11%	-0.35%	-0.17%	3.15%	-0.39%	-1.26%	4.51%	-3.52%	-0.51%	0.08%
16	-1.92%	3.56%	-1.71%	-0.50%	-0.57%	2.82%	-0.76%	0.54%	0.16%	5.19%	2.99%	-0.04%	0.76%	-0.93%	-0.16%	-1.54%	1.02%	1.59%	-0.65%	5.50%	0.77%	0.85%
17	-0.34%	-1.22%	1.47%	0.97%	0.31%	-1.09%	3.18%	-3.02%	3.19%	-3.25%	4.22%	0.00%	1.30%	-1.57%	-0.66%	0.76%	10.89%	-0.87%	0.27%	1.38%	0.80%	1.64%
18	1.07%	-5.09%	-0.48%	-0.84%	-1.68%	0.29%	-0.19%	-0.41%	2.92%	-1.26%	-0.85%	0.88%	1.24%	0.82%	-1.02%	-0.61%	3.67%	-0.06%	2.77%	-1.67%	-0.02%	1.62%
19	0.51%	2.61%	-0.49%	-1.38%	-0.28%	-2.27%	5.75%	1.74%	-2.14%	-0.40%	-0.39%	0.44%	-1.26%	2.97%	-1.59%	-0.57%	-3.21%	-1.05%	7.90%	-0.57%	0.32%	1.94%
20	1.44%	-3.28%	-0.77%	0.97%	-2.74%	-0.19%	4.16%	-7.49%	-0.85%	3.64%	-2.90%	-0.95%	0.60%	-1.03%	0.04%	-0.59%	-3.77%	-1.15%	1.34%	-3.22%	-0.84%	1.10%
21	-0.59%	-4.62%	0.25%	-1.13%	-3.23%	-1.24%	1.97%	0.75%	-1.91%	-1.36%	7.66%	-0.51%	-1.95%	0.21%	-0.91%	-2.01%	-1.65%	0.39%	19.36%	-1.69%	0.39%	1.49%
22	1.31%	-1.82%	-0.76%	2.79%	1.20%	-0.64%	6.59%	-4.45%	-0.60%	0.38%	-4.91%	-0.79%	0.03%	-1.13%	-2.77%	2.04%	3.82%	-1.40%	-7.81%	1.56%	-0.37%	1.12%
23	0.37%	-4.00%	-0.91%	-0.40%	-0.96%	-1.88%	6.53%	1.60%	2.27%	-0.03%	-2.12%	0.38%	0.34%	0.21%	-0.32%	-0.34%	-3.66%	-0.40%	-2.12%	-1.15%	-0.33%	0.79%
24	1.59%	-4.08%	1.05%	-2.73%	0.04%	-4.50%	6.29%	0.50%	-0.80%	-0.60%	4.00%	0.46%	0.70%	0.05%	-0.86%	5.69%	3.25%	0.81%	-0.91%	-4.46%	0.27%	1.06%
25	-0.34%	-2.72%	-0.49%	-2.20%	0.01%	-3.64%	-2.06%	1.33%	-4.82%	-1.10%	-5.22%	-0.40%	3.18%	1.31%	-1.48%	-0.01%	-0.77%	1.08%	-6.29%	0.50%	-1.21%	-0.14%
26	-0.18%	-2.90%	-2.22%	3.49%	-0.05%	3.96%	5.24%	-0.63%	-9.37%	1.85%	0.57%	1.16%	-0.37%	-2.04%	-3.23%	1.15%	2.25%	-0.80%	-1.79%	1.89%	-0.10%	-0.24%
27	-1.46%	2.53%	0.85%	3.38%	0.43%	-1.65%	2.29%	1.81%	0.77%	0.91%	-2.92%	1.43%	1.92%	-1.61%	-4.16%	0.62%	-0.39%	5.01%	-4.07%	-2.41%	0.17%	-0.08%
28	2.54%	3.91%	-0.29%	0.01%	0.17%	-0.63%	-2.04%	-1.11%	-2.15%	-0.93%	0.79%	0.18%	0.06%	-2.79%	0.62%	-0.66%	2.70%	-1.06%	-0.59%	-1.61%	-0.14%	-0.22%
29	1.05%	3.65%	1.67%	1.18%	-1.28%	1.94%	-3.69%	-5.38%	-1.22%	0.38%	-1.19%	0.96%	-1.69%	3.77%	-4.46%	1.68%	2.25%	1.31%	-0.29%	0.35%	0.05%	-0.17%
30	0.22%	2.10%	0.39%	2.44%	-0.75%	0.19%	2.55%	3.11%	-0.67%	-0.72%	-2.20%	0.76%	1.74%	-0.90%	0.13%	-2.36%	-1.27%	-2.44%	1.07%	0.05%	0.17%	0.00%