A Study of Wealth Effects of Takeover Announcements in India on Target Company Shareholders

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Executive Summary

The business strategy of inorganic growth is carried out by companies by resorting to actions which prominently include mergers, takeovers, and strategic alliances. There is a rapid growth of both mergers and takeovers in India subsequent to the economic liberalization. The companies consider takeover activity as the quickest means of corporate growth to enhance their size and face the domestic and global competition.

In spite of several decades of vast research, researchers have not come to the final conclusion on the wealth effect of announcements of takeovers on the shareholders of participating companies. While some studies justify takeover as a socially productive activity which creates value for the shareholders, others provide contrary evidences to show that they destroy value for the shareholders. In India, only some studies have analysed the impact of M&A announcements on the stock return performance of companies involved and there is lack of evidences on wealth effects on shareholders. Therefore, this paper assesses the impact of takeover announcement on the stock price performance of target companies by taking a sample of 227 companies which received takeover bids during 1998-2007. The stock price reaction is examined for a period of 61 days surrounding the bid announcement day employing standard market model. BSE-200 index is used as a proxy for the market. The regression co-efficient and the constant terms are estimated over a period of 250 days (-280 to -31) and the statistical significance of the results of the study is determined by non-standardized and standardized abnormal return methods. Both raw returns and log returns are examined.

Results of the study show that target company shareholders experience substantial and statistically significant cumulative average abnormal returns (CAARs) of 27-37 percent — 37 percent when raw returns are employed and 27 percent when log returns are employed. The conclusions remain unchanged irrespective of the testing procedure used (i.e., non-standardized or standardized abnormal returns method) and even for several shorter event window periods within a broader event window of 61 days. The results for target companies are consistent with the evidence of extant research that major benefits from M&As accrue to target company shareholders.

The practical implication of the study is that there is a large and significantly positive wealth effect on the target company shareholders in response to the announcement of takeovers. Takeovers offer an opportunity to shareholders of target companies and general investors to make profits both in the period before and after the announcement of the takeover bid.
Companies can grow either internally or externally. Internal growth, which is also called organic growth, is achieved by opening up of branches, introducing new products or product lines and the like. The business strategy of external growth or inorganic growth is carried out by companies by resorting to actions which prominently include mergers, takeovers, and strategic alliances. Mergers and takeovers have become an important form of geographical expansion across the world. Cross-border M&A deals have increased from $30 billion in the year 1987 to $583.6 billion in the year 2006, when only deals valued at over $1 billion are considered. The number of deals during this period has increased from 14 to 172 (UNCTAD, 2007, p.6). The increase in the M&A deals is on account of economic liberalization and integration of economies world over. Mergers generally involve the combination of two or more existing companies into one company, either old or new, whereas takeovers generally involve acquiring the management control of an existing company by another company by acquiring controlling interest in that company. In a takeover, both sets of companies remain separate legal entities though there is a change in the management control of the acquired company. The company which acquires the controlling number of shares in the other company is called acquiring company or purchasing company and the company which is controlled by the acquiring company is called target or acquired company.

There has been a rapid growth in the mergers and acquisitions (M&As) activity in India since the initiation of economic reforms in 1991 (Beena, 2004, p. 11). Though both merger and takeover activities have been taking place simultaneously in India, takeovers have played a significant role in corporate expansion, particularly in the last few decades (Bhoi, 2000, p. 147). The changed economic scenario has contributed to the growth of takeover activity in India. The business entities now have to compete not only with companies in the Indian market but also with corporate giants in the international market which are fully equipped with huge capital and superior technologies. Companies find takeover activity as the quickest tool of growth to enhance the balance sheet size (Beena, 2004, p. 22) and face the global competition. The increased financial strength helps companies to survive and grow.

While takeover activity has undoubtedly increased drastically all over the world, whether this activity has created wealth for the acquiring, target, and the combined firm or the shareholders, is an unresolved question. In spite of several decades of vast research, there has been no conclusive evidence on the wealth effect of takeover announcements on the participating companies’ shareholders. While some studies justify takeover as a socially productive activity which creates value for the shareholders, others provide contrary evidences to show that they destroy shareholders’ wealth of the participating companies. Most of the event studies show that mergers create shareholder value, with most of the gains accruing to the target company. For instance, review studies like Jensen and Ruback (1983), Jarrell, Brickley, and Netter (1988), Bradley, Desai, and Kim (1988), Datta, Narayanan, and Pinches (1992), Bruner (2002), and Campa and Hernando (2004) find that target shareholders’ returns are on an average significantly positive in almost all cases. These surveys report average cumulative abnormal returns (CARs) in the range of 20-30 percent. Reviewing the earlier studies, Campa and Hernando (2004) find large CARs to target company shareholders, but significantly lower gains for more recent transactions.

The evidences on gains to bidding firms on the announcement of M&As are mixed. These studies find either break-even (e.g., Andrade, Mitchell, & Stafford, 2001; Campa & Hernando, 2004; Georgen & Renneboog, 2004) or a small statistically insignificant gain (e.g., Mandelker, 1974; Langetieg, 1978; Asquith, 1983; Asquith, Bruner, & Mullins, 1983) or in some studies negative bidder returns (e.g., Dodd, 1980; Cornett & Tehranian, 1992; Houston & Rynegaert, 1994; Fee & Thomas, 2004; Moeller, Schlingemann, & Stulz, 2005). Bruner (2002) opines that the pattern of findings about market-based returns to buyer firm shareholders is more inconsistent. He summarizes the findings of 44 studies of which 20 studies report negative returns with 13 significantly negative varying from one to three percent while 24 studies report positive returns, 17 of which reflect significantly positive returns. He concludes that in the aggregate, abnormal returns (ARs) to buyer shareholders from M&A activity are essentially zero. Goergen and Renneboog (2004), reviewing the literature on wealth effects of announcement of M&A, opine that there was little consensus about the announcement of wealth effects for the bidding firms and states that about one-half of the studies report small negative returns for the acquirers whereas the other one-half find zero or small positive returns for the acquirer. Campa and Hernando (2004) review 15 studies and opine that
the evidence on returns to buyer firms is less conclusive. Ten studies reviewed by them report negative ARs and the negative returns vary between less than one percent and five percent. In most of the cases, even CARs are significantly different from zero. The results in these studies contrast with those which have found positive returns to acquiring firms (reported by Jensen & Ruback, 1983; Jarrell et al., 1988; Datta et al., 1992). Seven studies examined by them report zero or positive returns to acquirers. They conclude that in the aggregate there is no strong evidence for either positive or negative CARs to acquirers.

Even the effect of wealth creation from M&As on the combined firm is not clear. The combination of positive CARs to the target and break-even returns to the buyer, raise the question of value creation from mergers. This is because of size difference between the buyer and the target. Normally, the size of the buyer is substantially larger than the target. A large percentage gain to the target shareholders in such cases could be neutralized by a small percentage loss to the buyer shareholder (Jensen & Ruback, 1983; Asquith et al., 1983; Houston & Ryngaert, 1994; Bruner, 2002; Campa & Hernando, 2004; Goergen & Renneboog, 2004; Moeller, Schlingemann, & Stulz, 2004; and Moeller, Schlingemann, & Stulz, 2005). Most of the studies which look at the combined weighted return for the target and the buyer firms report positive combined returns. However, the magnitude of the CARs in these studies is relatively low and at times negative and value destroying. Bruner (2002) reports the findings of 20 studies, almost all of which report positive combined returns, with 11 of the 20 being significantly positive. His findings indicate that M&As do pay the investors in the combined buyer and target firms. Campa and Hernando (2004) and Goergen and Renneboog (2004) also subscribe to the evidence of Bruner (2002). The finding of Bruner (2002) is consistent with the previous evidence in the literature (for instances, Jensen & Ruback, 1983; Jarrell et al., 1988; Datta et al., 1992; Cybo-Ottone, & Murgia, 2000) suggesting that M&As do result in a total increase in the combined shareholder value of merging firms. The evidence from Fee and Thomas (2004) is also consistent with the evidence provided by Bruner (2002).

The evidence from India is scarce in this area and the review of studies conducted abroad indicates that the target company shareholders gain from the M&As. Therefore, we would like to examine evidence from an emerging economy perspective to ascertain whether or not the takeover announcements create value for the target company shareholders. We assess the impact of takeover announcements on the stock price performance of target companies by using a sample of 227 companies for a period of nine years from April 1998 to June 2007. We follow a standard market model to estimate the abnormal returns (ARs) for 61 days (i.e., 30 days before, 30 days after, and the day of the takeover announcement), and find out the statistical significance of the results by non-standardized and standardized abnormal returns method. Our results are based on both raw returns and log returns.

The results of this study show that takeovers in India create wealth for the target companies’ shareholders for an event period of 61 days surrounding the announcement of takeovers. The target companies’ shareholders realize a cumulative average abnormal return (CAAR) in the range of 27-37 percent. These conclusions hold good even for shorter event windows within a broader event window of 61 days surrounding the takeover announcement. Our findings are analogous with that of vast majority of studies conducted in other countries.

LITERATURE REVIEW

Review of Foreign Studies

Researchers generally employ two ways to address the impact of M&As on shareholders. The first approach employs share price data to know gains and losses to shareholders (i.e., ex ante measure). The second approach is to analyse the profitability of companies using accounting data (i.e., ex post measure). A number of foreign studies have focused on the short-term wealth effects of M&A announcements on the stock prices of the target company shareholders. We consider here only those studies which assess the impact of takeover announcements on the target company shareholders. Dodd and Ruback (1977), examining the tender offers for the period 1958-1976 in the US, both successful and unsuccessful, report that target firms earn large positive ARs from tender offers, and most of these returns occur in the month of the offer. Their evidence indicates that in the month of announcement, target firm stockholders earn large and significant ARs of 20.58 percent for successful offers and 18.96 percent for unsuccessful offers. Firth (1980) examines takeover activity in the UK in the period 1969-1975 and finds that the
residuals for the target company shareholders in month zero are highly significant at 0.281 and 0.312 to offerees taken over and offerees not taken over, respectively, and 99 percent of the securities recorded gains. Firth concludes that mergers and takeovers resulted in benefits to the acquired firms’ shareholders and the acquiring companies’ managers, but that losses were suffered by the acquiring companies’ shareholders.

A review study undertaken by Jensen and Ruback (1983) in the US indicates that the corporate takeovers generate positive gains, that target firm shareholders benefit, and that bidding firm shareholders do not lose. They find that target firms in successful takeovers experience statistically significant abnormal stock price changes of 20 percent in mergers and 30 percent in tender offers. Chatterjee (1986), examining the US merger data, finds that the resources behind financial synergy tend to create more value than the resources behind operational synergy, and that unrelated targets significantly outperform the related, non-horizontal targets. He finds that on average, the target in an unrelated merger gained 17.48 percent during five days surrounding the merger announcement as opposed to a gain of 12.32 percent for the targets in related, non-horizontal mergers. Singh and Montgomery (1987) examine 105 US acquisitions of market value greater than $100 million during 1975-1980 and show that acquired firms in related acquisitions have higher returns than acquired firms in unrelated acquisitions. Bradley, Desai, and Kim (1988), for a sample of successful tender offers occurred between 1963 and 1984 in the US, find that target stockholders have captured the lion’s share of the gains from tender offers, and that competition among bidders increases the returns to targets and decreases the returns to acquirers. They prove that the targets of multiple-bidder contests realize greater gains not only at the expense of the shareholders of acquiring firms but also from the greater synergistic gains that accompany these transactions. Jensen (1988), reviewing the earlier studies, indicates that the market for corporate control is benefiting shareholders, society, and the corporate form of organization in the US. He observes that the gains to selling firms are huge though the buyer firms do not gain much. Jarrell, Brickley, and Neter (1988) summarize the results of a review study for 663 successful tender offers in the US for the period 1962-1983 and observe that premiums to target in successful tender offers averaged 19 percent in 1960s, 35 percent in 1970s, and 30 percent for 1980-1985. They report that during 1960-1985, acquirers earn a statistically significant excess return and that multiple bidding tend to increase target premiums and reduce bidder returns.

Franks and Harris (1989) examine the impact of over 1,800 UK takeovers on the wealth of the shareholders between 1955 and 1985 and report that targets gain 25-30 percent and bidders earn zero or modest gains around the merger announcement date. Limmack (1991), analysing the UK data, points out that for the period from bid month to outcome month, the target company shareholders gain substantially from the bid, and shareholders of acquiring company do not lose. For target companies in abandoned bids, he notes that the gains made during the bid period remain for a period of at least two years subsequent to the bid in anticipation of future bids. Datta, et al. (1992) provide an overview of the literature on wealth creation in M&As in the US and show that while the target firm’s shareholders gain significantly from M&As, those of the bidding firm do not. He also reports that targets benefit more in tender offers than in mergers.

Cybo-Ottone and Murgia (2000), for a sample of very large M&A deals in the European banking industry for the period 1988-1997, document a significant and highly positive effect to the target company shareholders for all the event windows analysed. Bruner (2002) reviews and summarizes the evidence from 14 informal studies and 100 scientific studies from 1974 to 2001 and shows that target shareholders earn sizable positive market-returns; that bidders earn zero adjusted returns; and that bidders and targets combined earn positive adjusted returns. Goergen and Renneboog (2004) analyse the market reactions to 187 large intra-European M&A deals with a value of at least USD100 million. They find announcement effects of 9 percent for the target firms compared to a statistically significant announcement effect of only 0.7 percent for the bidders. The type of takeover bid has a large impact on the short-term wealth effects with hostile takeovers triggering substantially larger price reactions than friendly operations. Campa and Hernando (2004) look at the value generated to shareholders by the announcement of 262 M&As involving firms in the European Union over the period 1998-2000. The study finds that target firm shareholders receive on average a statistically significant CAR of 9 percent in a one-month window centred on the announcement date. Campa and Hernando (2006) look at the performance record of M&As that took place in the
European union financial industry in the period 1998-2002. They find positive excess returns to the shareholders of the target company around the date of announcement and essentially zero returns to shareholders of the acquiring firms around announcement. One year after the announcement, the excess returns were not significantly different from zero for both targets and acquirers. Warell (2007) analyses the competitive and efficiency impacts of a large merger which has occurred in the year 2000, in the world iron ore industry and show that the merger announcement increases the value of the target firm but not significantly for the acquiring firm. After adjusting the analysis to include several information releases about the merger, the author finds that efficiency improvements were the predominant motives behind the merger.

Martynova and Renneboog (2008) examine the determinants of M&A activity, and compile the findings for all five waves since the end of the 19th century for the US, the UK, Continental Europe, and Asia. They note that the conclusions of empirical evidence on the profitability of the takeovers do not entirely converge as to whether takeovers create or destroy company value. They show that at the announcement, takeovers trigger substantial value increases, but most of these gains are captured by the targets’ shareholders. Lubbers (2008) investigates the wealth effects of takeovers in the mining industry in Germany between 1896 and 1913. The study observes that while the owners of the acquired companies were the clear beneficiaries, those of the acquirers hardly gained significantly. For M&A announcements in New Zealand during the period 1983-2006, Marshall and Anderson (2009) find evidence that stronger takeover regulation results in higher announcement returns and premiums for targets. Using a global M&A data set and examining the acquisition activity, occurring in 59 countries from January 1989 to December 2005, Croci and Petmezas (2009) provide evidence supporting the view that the minority shareholders in target firms’ gain significantly more in countries with high stock market development than their counterparts in the less-developed markets.

**Review of Indian Studies**

During the post-economic liberalization period, the level of M&A activity has increased in India, based on both numbers of M&As and the amount involved in these deals. However, the volume of academic literature on M&As in general and on the performance of bidders and targets in particular, has not increased proportionately. We find only a few stock price studies examining the performance of the mergers and takeovers in India. Most of these studies examine the effects of mergers announcements and not of takeovers. We find only two studies, i.e. Pandey (2001) and Chakraborty (2010), which examine the impact of takeover announcements on target company shareholders in the short run. Pandey (2001) studies the stock price performance of relatively large target firms surrounding open offers, between 1997 and 2001, in the context of change of management. The sample of his study consists of 16 open offers with value of above ₹ 10 crore. To assess the impact of open offer announcements on target firms’ stock returns, he conducts event study methodology using market model and market adjusted model. The model parameters are estimated by regressing individual daily stock returns on the market index over the estimation period (i.e., -51 days to -150 days). BSE Sensex is used as market index for the market model. Pandey documents significant announcement effects associated with the takeovers in the Indian capital market. The study finds that the target firm valuations increase in the run-up to announcement. The target firms’ stock prices earn significant 8.7 percent returns between -2 and 0 day, 12.1 percent between -10 and 0 day and 18.43 percent between -30 to 0 day. These results are consistent with the empirical studies undertaken elsewhere. Therefore, he strongly argues that owing to relatively large insiders’ shareholdings, takeover as governance mechanism is not likely to be effective, and private value of control may be the driver in the market for corporate control. Chakraborty (2010), using the parametric and non-parametric tests, examines the wealth effects of shareholders of the bidder, target, and combined firms on the announcement of takeovers for the period 2001-07. The sample for her study consists of 67 targets from the financial sector which are listed in Bombay Stock Exchange (BSE) and BSE listed corporate bidders of these targets. The findings suggest that the shareholders of target firms earn significantly positive ARs on takeover announcements. However, further analysis of her results reveal that the positive returns was the contribution of only 19 firms, while, for the remaining 48 firms, there was no market reaction on takeover announcements. Chakraborty provides some evidence that bidders experienced post-event positive wealth effects on takeover announcements. However, on closer examination, she finds that this was not true for the majority as the
significant findings were the outcome of the reaction of only two firms. On analysis of the combined returns, positive results were observed by the author. But this was again largely because of two pairs of companies generating significantly positive results. This study concludes that except for a few cases, which show positive returns, takeovers in the financial services sector, in general, do not evoke market reaction.

The evidences of review of studies on the impact of the announcement of mergers on the stock prices are discussed below. Dash (2004) examines in detail the long-run post-merger stock price performance of acquiring firms in related and unrelated mergers completed in mid-nineties (1994-1996) for a sample of 10 Indian mergers for which stock price data are available for three years before and five years after the mergers. He undertakes the event study methodology, and employs market model to estimate model parameters. For the five year period from merger, he finds that the cumulative average abnormal return (CAAR) is -0.684 percent which is statistically significant at 1 percent level, indicating that the shareholders of bidder firms do suffer wealth decreases as a consequence of merger. He also reports that the average abnormal returns (AARs) are positive in the second and third year succeeding the merger year and negative after that. Dash notes that the CAAR is negative in the pre-announcement period, but it is negative and significant in the announcement period which demonstrates that the market reacts negatively to the announcement of merger. The study demonstrates that the shareholders of bidder firms do suffer from the value destruction or negative synergy as a consequence of merger. Our observation is that he examines the long-run post-merger performance of acquiring firms and not of the target firms. He focuses on long-term performance of the acquiring firms and not in the short-run. Moreover, his study is confined to mergers and does not include takeovers.

Rachappa and Satyanarayana (2007) examine the share price performance of the acquiring and the acquired companies. Capital Asset Pricing Model (CAPM) is used by them to estimate the normal returns. The period of their study is 12 months which consists of four months each before, during, and after the announcement of the merger. This study concludes that mergers result in abnormal gain to the shareholders of the acquiring firm and abnormal losses to the shareholders of the acquired firm. However, they observe that the abnormal gains differ at various stages of the merger process.

We discuss below the three studies published on different time periods on the merger between Reliance Industry Limited (RIL) and Reliance Petroleum Limited (RPL). Kumar (2004) examines empirically the stock price performance of the announcement of merger between RIL and RPL in 2002, employing market model and market adjusted model and using daily stock returns data for an event window of 41 days (-20…0…+20). Results of Kumar’s study reveal that the ARs for RIL based on both models show negative gains in different time windows except a marginal gain for a two-day window in the case of market model. For the target firm RPL, he finds that the announcement day return was found to be -0.867 percent, and CAR decreases from -1.74 percent to -13.75 percent during the period t = -10 days to t = +10 days. On the basis of the findings, Kumar concludes that all benefits from a merger are not capitalized in the acquiring firm’s stock price at or before the announcement of the merger. However, this study does not test the statistical significance of the results as only one pair of companies is considered for the analysis. Mishra and Goel (2005) also employ market model with an event window of 41 days (-20…0…+20). Regression parameters were estimated by them using 180 days data from the period before and after the announcement of the merger but excluding 20 days before the announcement of the merger. Their study shows 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. They find that in the process of merger, despite the deal appearing to be favourable to the shareholders of RIL, they lost, and RPL shareholders gained from the deal. They also find that the RIL-RPL merger deal generated negative excess returns for the combined firm. The authors infer that this deal was led with the ‘empire building’ motive. Reddy and Arun (2008) examine the financial implications of announcement of RIL-RPL merger on the shareholders’ wealth for an event window of 41 days (-20...0...+20), employing the market model. Their study shows that positive excess returns occurred to the shareholders of the target company, RPL, and negative returns to the shareholders of the acquiring company, RIL. However, the results of these three studies cannot be generalized as these studies examine results of a single merger case and consequently do not use any statistical tools for testing the results. While Kumar (2004) concludes that
both the companies experience wealth loss, Mishra and Goel (2005) and Reddy and Arun (2008) conclude that shareholders of RIL lose and shareholders of RPL gain. Mishra and Goel also estimate the CAARs for the combined firm in addition to the acquiring and the target companies. Reddy and Arun (2008) use the model for computation of wealth effects of merger on shareholders of the acquiring and target companies, but do not empirically examine the impact of mergers on the shareholders of the combined firm.

This paper looks at three studies that have examined the wealth effects of announcement of bank mergers on the shareholders of acquiring bank/s, acquired banks, and combined banks. Selvem, Vanitha, and Raja (2006) study the reaction of the share prices of ICICI Bank to the announcement of merger of Bank of Madura with ICICI Bank for an event window of 31 days (-15...0...+15) using daily stock prices and employing event study methodology. They found decrease in the CAR during the period of merger and the decrease is more pronounced after the merger. However, this study does not test the statistical significance of the results for the purpose of generalization. Mann and Kohli (2008) empirically evaluate the synergistic gains from bank mergers by dividing them into two categories of forced mergers and market-driven mergers. They assess the impact of merger announcement on the shareholders’ wealth of the acquiring company. A sample of eight bank mergers, announced between April 1, 1997 and March 31, 2007, were examined by employing the market model and using event study methodology, for an event window of 101 days (50...0...50). The empirical results indicate that markets have reacted negatively to the announcement of forced mergers while the reaction has been positive to that of market-driven mergers. The total sample of their study has shown a positive market reaction to the announcement of bank mergers. This trend of CAARs for the total sample is almost similar to the trend of CAARs for the market-driven mergers. They reason that in the total sample, a significant positive market reaction of the market-driven mergers has overshadowed an insignificant negative market reaction towards the non-market driven mergers. Anand and Singh (2008) examine the impact of merger announcements on shareholders’ wealth for a sample of five mergers of Indian private sector banks during the period 1999-2005. They find positive and significant shareholder wealth effects, both for bidder and target banks. The market value weighted CAR of the combined bank portfolio as a result of merger announcement is 4.29 percent in a three-day period (-1,+1) event window and 9.71 percent in a 11-day period (-5,+5) event window.

Gupta (2008) examines the stock price performance of target companies in case of merger announcements in India during the period, 2003-2007. This study finds significant positive returns on the date of the announcement and the period run-up to the date of announcement. During the 30 days before the merger date, returns were positive for 20 days compared to negative returns on only 10 days. Gupta opines that the market had prior knowledge of the impending merger and that market perceives mergers to be value enhancing in the short run. However, after the announcement of mergers, there was a reversal in the patterns, as positive returns were seen for a smaller number of 13 days compared to negative returns on 17 days. The returns gained prior to the merger were lost immediately after the announcement. CAARs for the various periods after the merger announcement are negative and significant. Ramakrishna (2010) examines the effects of merger announcements on shareholders wealth in the Indian context covering a seven-year period, 1996-2002 for a sample size of 34 companies. It is found that the acquired firm shareholders enjoy significant wealth gains of 11.6 percent in a 21-day event window period, whereas the acquiring and combined firm shareholders do not do so. He also shows mergers that do not see transfer of corporate control give significant wealth gains of 21.1 percent on announcement on the target firm shareholders, whereas those where such a transfer takes place do not witness such gains.

Srinivasan and Mishra (2007) analyse the intents of acquiring and target companies in the case of 30 recent M&A deals involving at least one Indian firm and show that horizontal acquisitions help retain or gain market leadership. They also find that market entry is a dominant motive for MNCs acquiring domestic acquirers for the acquisition, and complementarity of intent between the two firms is important for leveraging synergies. Kumar and Rajib (2007a) attempt to ascertain the characteristics of merging firms in India with the help of a sample of 227 acquirers and 215 target firms during the period, 1993 and 2004. Nayyar (2008) analyses the rapid expansion in outflows of foreign direct investment from India and the spurt in foreign acquisitions by Indian firms in the wider context of international investment from develop-
ing countries.

In addition to stock price studies, many studies examine the financial performance of either acquired firms or combined firms based on accounting/financial data. While some studies find improvements in financial performance based on accounting information (e.g., Joshi, 1991; Bhanu, 2005; Kumar & Rajib, 2007b; Reddy & Padma, 2005; Selvem, Vanitha, & Babu, 2005; Gangadhur & Reddy, 2007; Mann & Kohli, 2008; Ramakrishna, 2008), many other studies find no significant improvement in the financial performance based on accounting information (e.g., Agarwal & Bhattacharjea, 2006; Beena, 2000; Pawaskar, 2001; Kumar, 2004; Dash, 2005; Beena, 2004; Bagchi & Banerjee, 2005; Gourlay, Ravishankar, & Weyman-Jones, 2006; Mantravadi & Reddy, 2007; Mallikarjunappa, 2007; Tambi, 2007; Kumar & Rajib, 2007b).

A review of extant literature on M&As reveals that a large number of foreign studies have examined the short-term wealth effects of takeover announcements on the shareholders of target companies and these studies conclude that wealth gains to target company shareholders is large and statistically significant ranging around 20-30 percent in most of the studies. However, we observe that research on M&As in the Indian context is not exhaustive. We find some quality research on wealth effects of M&As only in the last decade (2001-2010). However, most of these studies are on the wealth effects of mergers and not of takeovers. We find only two studies which examine the wealth effects of takeovers on target companies’ shareholders. Further, the sample size of these studies is not very large and period chosen for the study is short. While Pandey (2001) examines 16 open offers between 1997 and 2001, Chakrabarty (2010) uses 67 target companies in the financial sector for the period 2001-2007. The findings of these studies cannot be generalized for takeovers as the sample of the first study is limited and the other study is related to a specific sector. Moreover, we find no study in the Indian context that has tested the statistical significance of results by standardizing the ARs as in Patell (1976). Further, we examine the wealth effects of the event both with and without standardization of the ARs. As the earlier studies are limited in number, it is not clearly known whether short-term wealth effects of takeover announcement to shareholders of target companies in India are similar to that of the foreign studies. Therefore, there is a need to ascertain the short-term wealth effects of takeover announcements in India on the target companies. We examine a large sample of 227 target companies covering a period of around nine years from April 1, 1998 to June 30, 2007.

METHODOLOGY

Data Collection

Researchers over the years have used monthly, weekly, or daily data to study the impact of price-sensitive information on stock prices. However, monthly or weekly data fails to show the exact time of adjustment of stock prices to the new information. Therefore, to fulfill the need of the ‘precise evidence’, we use daily adjusted closing stock prices to compute returns in this study.

According to the requirement of our study, three data sets are used. The first set of data comprises date of announcement of takeovers by the sample companies which is defined as the ‘event day’. For this purpose, we relied on the information given in Prowess (2.6 release), a database of the Centre for Monitoring Indian Economy (CMIE) Private Ltd. Prowess data base contains two sets of dates related to the takeover announcements, i.e., the date of announcement of takeover to the market (to the stock exchange), and the announcement date to media. When date of announcement of takeovers to the market (stock exchange) is not available, we consider the date of announcement of takeover to the media. However, when both the dates of announcement of takeover to the market and to the media are available, we choose the one that occurs first. In other words, whichever announcement occurs first, is taken as the ‘event day’ in our study.

The second set of data is the daily adjusted closing prices of the stocks of the selected companies. The third set of data is the market Index data of BSE-200 index. Though several other stock price indices are also available to represent market movement, BSE 200 is preferred over these indices as it is a broad-based index with 200 stocks.

Sample Selection and Data Source

To study the stock price reactions to the takeover announcements, the sample of companies is selected on the basis of the following criteria:

- Takeover announcement dates, to the market or to the media or both, should be available for the sample companies in “Prowess”.

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The stocks of the companies should be listed and traded on the Bombay Stock Exchange and sufficient number of stock prices should be available for them in the 61-day ‘event window’ (30 trading days before, 30 trading days after and the day of announcement, i.e., day ‘0’) and ‘estimation window’ of 250 days (from -280 to -31 trading days, day 0 being the day of announcement). Therefore, only stocks of public limited companies which are listed on the BSE and having adequate stock prices for them in the estimation period and event period are chosen. To include the stock in the sample, the stock prices should be available for a total of 312 trading days so that we can compute 311 days stock returns, i.e., 61 days event window returns and 250 estimation period returns.

The estimation window stock prices (i.e. 250 trading days) should be available for the companies within a period of two years immediately preceding the date of announcement of takeover by the sample companies. In the case of highly infrequently traded companies, share price data for 250 trading days may be available but not within two years before from the date of announcement. In such cases, those companies are excluded from the sample.

Multiple mergers/takeovers should be separated so that the estimation and event period do not include other merger/takeover announcements for the same firm. In other words, there should not be any additional announcement of merger/takeover for the sample company both in the estimation and the event period. However, if a takeover bid is announced for a company in the period outside the event and estimation window of a specific takeover announcement, it is included in the sample. In this situation, we can disentangle the effect of one takeover announcement from that of the other, as the time gap between the two announcements is substantial. In such cases, the names of those companies appear more than once in the sample.

The date of announcement of takeover to the market or to the media along with the name of the target company, the daily adjusted closing prices of the sample companies, and BSE 200 Index closing prices are collected from the Prowess (2.6 release). The number of sample target companies, satisfying the first three selection criteria is 236, which comes down to 227 after excluding the companies which have announced mergers/takeovers either in the estimation or in the event period. The companies which receive takeover bids between April 1, 1998 and June 30, 2007 are considered for sample selection in our study.

**Research Design**

This study follows event study methodology to assess the impact of takeovers announcements on the stock returns of target firms. The use of this methodology involves certain steps which include identifying the date of announcement of the takeover bid to the market/media, estimating the normal (expected/predicted) returns, measuring ARs, aggregating the ARs across the firms and across time, and finally, determining the statistical significance of the aggregated ARs by following appropriate testing procedure.

In the study of stock price reactions to the announcements of takeovers, the announcement time of the takeovers is a critical factor. According to Dodd (1980, p.107), “accurate estimation of the market response to the merger/takeover requires use of the date of first announcement of the merger/takeover proposal.” We use the first announcement date of takeover proposal as the event day, as in Dodd (1980) and subsequent studies, and not the announcement of the ‘effective date’ of takeover. The announcement day of the takeovers determines the ‘event window’ and the ‘estimation window’. Event window is a period within which ARs are computed. It is the period over which the cumulative or net effect of the announcement of an event on the stock prices is examined. Event window is the window which is the event day and some number of trading days before and after the event day for which the sample firms’ returns are observed. The date of announcement of the takeover is called the ‘event day’ and is defined as day ‘0’. In event studies, the estimation and the event period are taken relative to the designated event day. The day +1 is the next trading day after the event day and day -1 is the immediate preceding trading day. The 61 trading days, i.e., 30 trading days before, 30 trading days succeeding the event day and the event day, is the ‘event window’ during which the stock price responses to the event (i.e., takeover announcement) are examined in our study. The market may start anticipating the announcement of takeover, or the information regarding the announcement of takeover bid may leak well before these are officially conveyed to the market. The takeover transaction itself may extend over several weeks. The negotiation may start before the public announcement.
Although M&A talks may take place privately and in secrecy, news may leak and the market may start speculating about the acquisition. Thus, the stock prices may start responding well before the official announcement of merger/takeover. Therefore, the responses of the stock prices are examined for 30 trading days before the event day. Similarly, sometimes, market may take some time even after the announcement to fully capture the information content of the event, i.e., announcement of the takeover. Therefore, the responses of the stock prices are examined for 30 trading days after the event day. Though the choice of the ‘event window’ of 61 days, i.e., 30 days before and 30 days after the event day, is subjective, a period of 30 days before the announcement of takeover is considered appropriate to capture the effect of information circulated about the announcement of takeover or the anticipation of the event by the market. Similarly, post-announcement period of 30 trading days are considered sufficient to absorb fully the information contained in the announcement of takeover. Further, within this broad event window, several smaller windows are used to analyse intensively the wealth effects of the announcement of takeover on the shareholders of target firm.

Computation of excess returns or ARs requires the computation of normal returns which are based on the estimation period. Estimation period is a period which is used to compute the estimated returns. It is a period outside the event window on the basis of which alpha and beta are estimated using the ordinary least squares (OLS) regression model. The estimates of the OLS parameters are based on 250 trading days (i.e. from –281 to -31 days).

Usually the event studies estimate the ARs and cumulate these returns over a number of days depending upon the window period. This is to fully capture the effect of an event on share prices. This consists of the calculation of average abnormal returns (AARs) and cumulative average abnormal returns (CAARs). Finally, the results are tested for determining their statistical significance. Thus, the study involves the computation of actual returns, expected returns, ARs, AARs, and CAARs, and subsequently testing these results.

**The Choice of Model**

The event study involves the estimation of excess or ARs which are explained by the firm-specific event (i.e. announcement of takeovers). Researchers have used different variants of the basic residual analysis methodology to study the effect of an event. In all these studies, they have calculated ARs as difference between actual and the expected returns (i.e. actual returns-expected returns). According to Weston, Chung, and Hoag (2007, p. 218), “AR is the part of the return on a security on day \( t \) that is not predicted, and therefore, is an estimate of the change in firm’s share price on that day which is caused by the event.” AR for the event window is the excess of actual returns over the predicted returns computed using the market model. Therefore, the unexpected part of the returns which is caused by the event is the excess return. The excess returns are also called residual returns or abnormal returns (ARs) or prediction errors. The level of ARs depends upon the return-generating model used to predict the stock’s expected rate of return, the market factor and the parameters like alpha and beta. The following market model of Sharpe (1963) is used in our study to compute the AR:

\[
AR_t = R_t - (\alpha_i + \beta_i R_m)
\]

Residual Analysis Methodology

**Computation of ARs, AARs and CAARs**

To assess the abnormal gains/losses to target company shareholders, the parameters of the market model like alpha, and beta based on returns on stocks and market index in the estimation period are first estimated, and then expected returns on each stock are calculated based on the market model. The estimated ARs of each stock are added and then average ARs are computed for each day during the event window to calculate AARs. The cumulative AARs of different days during the event window are designated as the CAARs.

Each security return is divided into two parts. These are those returns which can be attributed to market movement and those which cannot be attributed to market movement but to takeover announcement. The stock price responses to the takeover announcement or the event are measured by eliminating the market’s influence on stock’s observed rate of return. The methodology employed for the purpose is called ‘Residual Analysis Methodology’ since it involves calculation of residuals defined as that part of stock’s returns which is not explained by movement of the market. These residuals are explained by the event-related news of a particular company for which these are calculated. In our analysis, the market model measures the returns of stocks related to market movement. The market model is based on the fact that the most important factor affecting a stock’s returns is market factor and it is captured in the market model in the form of beta (β). It is a simple model to analyse the risk component of stocks in terms of systematic and unsystematic risks. Thus, the market model relates the return on any stock or portfolio of securities to the return on the market in a linear fashion. The actual tests are performed on the returns in these types of studies. Mathematically, the market model can be expressed as:

\[
E(R_{it}) = \alpha_i + \beta_i R_{mt} + \epsilon_{it} \quad \text{for } i = 1, \ldots, n
\]

- \(E(R_{it})\) = Expected return on security ‘i’ in time ‘t’
- \(\alpha_i\) = Alpha coefficient of \(i^{th}\) security which is the intercept of a straight-line
- \(\beta_i\) = Beta coefficient of \(i^{th}\) security or the slope of a straight line
- \(R_{mt}\) = Expected return on BSE 200 Index in period ‘t’
- \(\epsilon_{it}\) = Error term with mean zero and a constant variance during time ‘t’. This term captures the variations that are not captured by the market index. The disturbance term captures the effects of firm-specific takeover announcement. The error term is assumed to satisfy the ordinary least square (OLS) regression assumptions.

Thus, the market model divides security returns into two components — systematic component (\(\beta_i R_{mt}\)) and an unsystematic component (\(\epsilon_{it}\)). The systematic component measures the impact of general market movement, and unsystematic component, also called error term, measures the influence of micro event on the rate of return of individual security. Thus, the error term is a firm-specific component. In this study, takeover announcement is a firm-specific component. That part of return which is attributable to the announcement of takeover is measured by error term. According to Dodd (1980), “When a group of firms experiences the same economic event, such as a merger proposal, the average disturbance of the group is interpreted as capturing the economic impact of the event”. (p.108).

The logarithmic form of the model, which was used by Fama, Fisher, Jensen, and Roll (1969), is also employed in this study in addition to the above model to ascertain that the results do not arise because of use of simple general equilibrium models. The following model is used in this study:

\[
\log R_{it} = \alpha_i + \beta_i \log L_{it} + u_{it}
\]

where,
- \(R_{it}\) = Price relative of \(i^{th}\) security in time ‘t’
- \(\alpha_i\) = Alpha coefficient of \(i^{th}\) security which is the intercept of a straight-line
- \(\beta_i\) = Beta coefficient of \(i^{th}\) security which slope of a straight line
- \(L_{it}\) = BSE-200 Index relatives (in this study) in time ‘t’
- \(u_{it}\) = an error term with zero mean and a constant variance during time period ‘t’. This term captures the variations that are not captured by the market index. It is assumed that \(u_{it}\) satisfies the linear regression model assumptions

Continuously compounded security returns and index returns are computed by taking the logarithm of the security price relative and market index relative. Thus the above model helps in finding out the daily expected rate of return on an individual security by assuming a linear relationship between security returns and the return on...
the market. The actual tests are not performed on the daily prices of securities and stock index but on the natural logarithms of their price relatives. Though there is no unanimity whether raw returns or log returns are to be used in event studies, vast majority of studies use log transformed returns in estimating the normal return. However, this study has followed both raw and log returns to estimate the regression model and subsequent estimation of excess returns, AARs and CAARs.

There is a need to compute the estimates of $\alpha_i$ and $\beta_i$ for computation of the expected returns. The expected returns on each security is computed using the following model:

$$E(R) = E(R_{it}) = \alpha_i + \beta_i R_{mt}$$

The expected returns, E(R), are related to the market movements as per the market model used above. The error term, $\epsilon_{it}$ in the market model represents the residual return (abnormal return) for the security 'i' at time 't', which is equal to the realized return, $R_{it}$ minus expected rate of return. The ARs are given by the following model:

$$AR_{it} = \epsilon_{it} = R_{it} - (\alpha_i + \beta_i R_{mt})$$

where, $R_{it}$ = Actual returns

These excess returns can be used to test whether individual securities have earned ARs or not. This method of estimating ARs is referred to as "residual analysis", since the regression equation represents a normal return and the residuals $\epsilon_{it}$ in the equation represents the ARs (Fuller and Farrell, Jr., 1987, p.105).

ARs show change in firm value on that day caused by the announcement of takeover. But very often, individual security returns are affected by external factors and may not give an indication of trends in other securities. Therefore, to avoid the effect of a single or any group of securities on the ARs, the ARs are averaged across all the securities in the sample. According to Weston et al. (2007) "the reason for averaging across the firms is that stock returns are noisy, but the noise tends to cancel out when averaged across a large number of samples. Therefore, the more firms in the sample, the better the ability to distinguish the effect of an event" (p. 218). The individual security ARs are averaged for every day surrounding the event day, i.e. day -30 to day +30 and the AARs are computed. If there is no abnormal performance, the AAR value will be equal to zero.

To compute the AARs, the following model is used:

$$AAR_t = \frac{\sum_{i=1}^{N} AR_i}{N} \quad \text{For } i=1\ldots N; \ t = -30\ldots0\ldots+30$$

In the above model,

- $i$ = the number of specific security in the study
- $N$ = total number of securities
- $t$ = the days surrounding the event-day

Since the security's overall reaction to merger/takeover announcement will not be captured immediately by the AARs for one day, the cumulative totals of the AARs are computed over an event window period. The CAARs are chosen as a measure of cumulative abnormal performance. CAARs are calculated for 30 days each before and after the event day. CAARs are calculated by adding the AARs for each time period beginning 30 days before the event day and ending 30 days after the event day. These computations show average stock price behaviour during the event window period. CAARs show total effect of the event across all securities for the 61-day event window. According to Campa and Hernando (2004), "Short-term cumulative ARs will reflect changes in the expected future cash-flows to shareholders resulting from future synergies in the merged entity or from wealth redistribution among shareholders." The model used to compute CAAR is:

$$CAAR = \sum_{t=-30}^{+30} AAR_t \quad t = -30\ldots0\ldots+30$$

As suggested by Briston et al. (1992) and Campa and Hernando (2004), CAARs are computed for different event windows. Briston, et al. (1992, p. 645) state that “the rationale for splitting the overall event period into sub-periods is to test whether the ACER (if any) is generated around the announcement date.” Campa and Hernando (2004, p.63) state, “We have used different windows in our calculation of cumulative abnormal return measures to obtain some insight into the framework within which cumulative abnormal returns are on average generated and to check for the robustness of our results to the specified window.” If the market is efficient in the semi-strong form, we can expect excess returns on the day of announcement. In the absence of an unexpected increase in the wealth of existing shareholders, the expected value of CAAR should not be significantly different from zero. In other words, in the absence of abnormal performance, the expected value of the CAAR equals 0.
Testing the Statistical Significance of the AARs and CAARs

After computing the AARs and CAARs, statistical significance of these computed values are tested at a required confidence level. The statistical significance of AARs and CAARs are tested by the following two methods:

First Method (without standardizing the ARs). In this method the statistical significance of AARs and CAARs are tested using cross-sectional standard deviation of ARs. These values are generated from the estimation period.

1. Statistical Significance of AARs

The hypothesis is that the cross-sectional AARs are zero. The statistical significance of AAR for each day ‘t’ surrounding the event day is assessed by dividing AAR by its standard deviation which is denoted by \( \sigma_{AAR_t} \).

\[
\text{Test statistic} = \frac{AAR_t}{\sigma_{AAR_t}}
\]

where,

\[
AAR_t = \frac{\sum_{i=1}^{N} AR_{it}}{N}
\]

\( AAR_t \) = Average abnormal return on day ‘t’ in the event window

\( AR_{it} \) = Abnormal returns on security ‘i’ on day ‘t’

\( N \) = Total number of securities

\( t \) = The days surrounding the event-day

\( \sigma_{AAR_t} \) = Standard deviation of AAR

\[
\sigma_{AAR_t} = \sqrt{\frac{\sum_{i=1}^{N} (AAR_{it} - \overline{AAR})^2}{N-1}}
\]

where,

\[
\overline{AAR} = \frac{\sum_{i=1}^{N} AAR_{it}}{N}
\]

\( AAR_t \) = Average abnormal return on day ‘t’ in the estimation period

\( \overline{AAR} \) = Mean of AARs in the estimation period for 250 days, i.e. -280 to -31 trading days before from the date of announcement of takeover bid

\( N \) = Total number days in the estimation period

The above model has been employed by Dodd (1980), Brown and Warner (1985), Kothari and Warner (1997), Pandey (2001), Georgen and Renneboog (2004), Creighton, Gower, and Richards (2004), Gong and Firth (2004), and Mann and Kohli (2008). According to Brown and Warner (1985) “if the AARs are independent, identically distributed, and normal, the test statistic is distributed Student-t under the null hypothesis.” (p.8).

2. Testing the Statistical Significance of CAARs

The hypothesis — that the AARs cumulated over window period for the participating companies in response to the takeover announcement are statistically zero — is tested. The test statistic to assess the statistical significance of CAARs is:

\[
Z = \frac{CAAR}{(\sigma_{CAAR} \cdot \sqrt{T})}
\]

where,

\[
CAAR = \sum_{t=1}^{T} AAR_t
\]

\( T \) in the above equation is the number of days (i.e. from -30 days to +30 days) over which AARs are cumulated in the event window.

\[
\sigma_{CAAR} = \sqrt{\frac{\sum_{t=1}^{T} (AAR_t - \overline{AAR})^2}{(N-1)}}
\]

\( T \) in the above equation is the number of days in the estimation period. The above model has been used by Bradley, Desai, and Kim (1983), Kothari and Warner (1997), Georgen and Renneboog (2004), Creighton, Gower, and Richards (2004) and Gong, and Firth (2006).

Second Method (Standardization of ARs Method)

1. Testing the Standardized Prediction Errors across Firms (Average ARs).

In the words of Asquith (1983), “to produce independent and identically distributed excess returns, the excess returns must be standardized” (p.56). Therefore, these stan-
standardized excess returns are tested for determining the statistical significance by employing standardized prediction error test.


Under this approach, the ARs are computed for security ‘i’ in the event window following the market model. Patell (1976) notes that “since the errors are estimated for observations which are not used in the estimation of $a_i$ and $β_i$, they are not residuals in the strict OLS sense” (p.255). Therefore, these are called prediction errors rather than true residuals and should, therefore, be standardized according to the following formula (Strong, 1992, p.545):

$$SPE_{it} = \frac{PE_{it}}{(S_i \cdot \sqrt{C_{it}})}$$

where

$$S_{it}^2 = \frac{\sum_{t=1}^{T} PE_{it}^2}{T-2}$$

is the estimated variance of the residuals for security ‘i’ during the estimation period from the market model regression.

$$C_{it} = \frac{1}{T} \frac{1}{\sum_{t=1}^{T} (R_{mft} - \bar{R}_m)^2}$$

reflects standard econometric adjustment for the increase in variance for prediction outside the EP.

$S_i$ is standard deviation of prediction error, which is computed as the square root of its forecast variance, $S_{it}^2$. $T=$ the number of days in the estimation period (i.e., 250 days in our study); and

$$\bar{R}_m = \frac{1}{T} \sum_{t=1}^{T} R_{mft}$$

$PE_{it}$ is the prediction error or residuals of stock ‘i’ on day ‘t’.

$SPE_{it}$ is the standardized prediction error or residuals of stock ‘i’ on day ‘t’.

$\bar{R}_m$ is the average rate of return on the market index for the estimation period.

$R_{mft}$ is the rate of return on the market index for the day ‘t’ of the estimation period.

$R_{mft}$ is the rate of return on the market index for day ‘t’ of the estimation period.

After standardizing the prediction errors of each firm, these prediction errors are summed up across the firms each day and their statistical significances are tested on each day in the event period. In event studies, the number of observations, $T$, in each firm’s estimation period may differ from firm to firm due to differences in data availability (Patell, 1976, p. 256). According to Patell (1976, p. 256), “if this is denoted by subscript attached to $T$, each $t$ statistic has an expected value of zero and a variance equal to $(T_i - 2) / (T_i - 4)$.” Strong (1992) also subscribes to the above argument. Summing the standardized ARs for securities, normalized values can be formed. These normalized values fulfill the assumptions of normal distribution. The following is the formula used:

$$Z = \frac{\sum_{i=1}^{n} SPE_{it}}{\sqrt{\sum_{i=1}^{n} T_i - 2}}$$

In our study, the number of observations, $T$, in each firm’s non-forecast period (estimation period) remains the same across the firms taken in the sample (i.e., 250 days). Therefore, we compute the test statistic as given by Henderson (1990, p.299):

$$Z = \frac{\sum_{i=1}^{n} SPE_{it}}{\sqrt{N}}$$

2. Testing the Standardized Cumulative Prediction Error (SCPE)

According to Strong (1992, p.546), “the standardized cumulative prediction errors (SCPE) for firm ‘i’ is the sum of the SPE or standardized ARs between any two days of...
interest, adjusted for the number of days (M) being considered starting at \( t_1 \) and ending at \( t_2 \):

\[
SCPE_i = \sum_{t=1}^{M} SPE_{it} \sqrt{M}
\]

Similar calculations are also made for all firms on day ‘t’. When the number of observations, \( T_i \), in each firm’s non-forecast period varies across firms due to the non-availability of data, the following model is used to compute the test statistic as stated by Patell (1976, p.257), and Strong (1992, p. 546):

\[
Z = \frac{\sum_{i=1}^{N} SCPE_i}{\sqrt{T_i - 2}} \sqrt{\sum_{i=1}^{N} T_i - 4}
\]

In this study, the number of observations, \( T_i \), for all firms in the estimation period remains the same (i.e. 250 days). Therefore, the test statistic for firms, in the study, is the total of the SCPE, divided by the square root of the number of sample companies (N) as shown below (Henderson, 1990, p. 300):

\[
Z = \frac{\sum_{i=1}^{N} SCPE_i}{\sqrt{N}}, \text{ and } Z \text{ is } N(0,1)
\]

RESULTS

The results of the empirical study on the stock price response of the target company to the announcement of takeovers are presented in this section. Both raw and log returns are used for the computation of ARs.

AARs and CAARs to Target Company Shareholders in Response to Takeover Announcement using Non-standardized ARs Method for Testing

Results Based on Raw Returns — Event Window: 61 Days (-30 to +30)

The AARs and CAARs along with Z values (Z values computed by not standardizing the ARs), based on raw returns, to target company shareholders are presented in Table 1 for 61-day event window. The wealth effect of takeover announcement to the target company shareholders on day 0 is positive and significant at 3.63 percent (Z value at 5% level, 9.22). The results show that AARs are positive for 49 days (significant for 21 days), and negative but insignificant for 12 days. However, AARs are positive for 28 days in pre-takeover announcement day and significant for 16 days. In the post-announcement period, though the AARs are positive for 20 days, they are significant only for four days. The AARs are positive and significant continuously from day -11 to +2. This indicates that much of the information content of the event is incorporated into the stock prices in the period before the announcement period. Based on the above analysis, it is clear that the AARs are not significant on majority of the days in the event window.

The net or cumulative impact of takeover announcements on the stock prices are examined by observing the statistical significance of CAARs. The CAARs to the shareholders of the target company shareholders for the full event period, based on raw returns, are significant at 36.68 percent (Z value at 5%, is 11.93). CAARs are positive and significant for 58 days in the 61-day event window. For the period run-up to and including the announcement day, target company shareholders realize CAARs of 27.23 percent which are significant at 5 percent (Z value, 12.42). Major share of the CAARs accrue to the shareholders of the target company in the period from -30 to 0 day. This shows that the market has anticipated the event in advance. Only about 9 percent gains are earned in the post-announcement period. Gains in the post-takeover period suggest that the market took some time to fully absorb the information content of the event. As CAARs computed on the basis of raw returns are significant for the 61-day event window (i.e. on day +30) and for majority of the days in the event window period, we reject the null hypothesis that CAARs to the target company shareholders in response to the takeover announcement are not significantly different from zero.

Results Based on Log Returns — Event Window: 61 days (-30 to +30)

Table 2 shows that AARs, computed using log returns, to the target company shareholders are positive for 47 days and negative for 14 days for a 61-day event window. However, they are positive and significant only for 13 days. On the day of announcement, AARs are significant with 3.31 percent at 5 percent level (Z value, 8.45). AARs are positive and significant continuously from day -7 to +2. After that, they are either positive or negative but not significant except on day 30. The results indicate that market anticipates the event a few days before the event.
Table 1: AARs and CAARs to the Target Company Shareholders based on Raw Returns with Z values

<table>
<thead>
<tr>
<th>Event Day</th>
<th>AAR</th>
<th>Z Value</th>
<th>CAAR</th>
<th>Z Value</th>
<th>Event Day</th>
<th>AAR</th>
<th>Z Value</th>
<th>CAAR</th>
<th>Z value</th>
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day and information content of the event is almost complete within two days of the announcement of the takeover. However, we observe that the AARs are not significant for most of the days in the event window. The net effect of takeover announcements on the stock prices are examined by observing the statistical significance of CAARs. The CAARs, computed using raw returns, to the target company shareholders are 27.40 percent for the 61-day event window, which are significant at 5 percent. Further, CAARs are significant for 57 days in the 61-day event window. It is clear that major gains accrue to the target company shareholders from day -30 to day 0. The CAARs for this period are positive and significant 22.53 percent (Z value at 5%, 10.33). Another implication of the results is that the market is slow in incorporating the future benefits of takeover into the stock prices, as some gains may accrue to the shareholders of target companies in the post-takeover announcement period. CAARs are significant and show more or less increasing trend from day -25 to day +7 and show almost a constant trend, with slight variations from that point onwards till the day +30 when it reaches the highest value. As CAARs, computed on the basis of log returns, are significant for the 61-day event window (i.e., on day +30) and on majority of the days in the event window, the null hypothesis that CAARs to the target company shareholders in response to the takeover...
The CAARs that accrue to the target company shareholders under different event windows in response to takeover announcement (Z values computed by not standardizing the ARs for testing) based on both raw returns and log returns are presented in Table 3. The CAARs are positive and significant for all the event windows both for raw and log returns. On the day of announcement, the shareholders of the target company realize positive and significant CAARs under both raw and log returns (3.36% and 3.31%, respectively). Target company shareholders earn CAARs with a minimum of 3.63 percent for one-day event window (day 0) to a maximum of 36.68 percent for 61-day event window (-30 to +30). Based on the analysis above, we reject the null hypothesis that CAARs to the target company shareholders in response to the takeover announcement are equal to zero.
Abnormal Returns to Target Company Shareholders in Response to Takeover Announcement using Standardized Abnormal Returns Method for Testing

Results Based on Raw Returns — Event Window: 61 Days (-30 to +30)

The AARs and CAARs along with Z values (Z values computed by standardizing the ARs), based on raw returns, to target company shareholders are presented in Table 4 for 61-day event window. The Table shows that AARs are positive for 49 days (significant for 24 days), and negative but insignificant for 12 days. However, AARs in the pre-and post-takeover announcement period are positive for 28 days (significant for 20 days) and 20 days (significant only for four days), respectively. This indicates that much of the information content of the event is absorbed in the stock prices in the period before the announcement period. The target company shareholders experience significant AARs of 3.63 percent on the day of takeover announcement. Even under standardized testing method, AARs are not significant on majority of the days in the event window.

The CAARs to the target company shareholders for the full event period, based on raw returns, are significant at 36.68 percent (Z value at 5%, 14.08). For the period run-up to and including the announcement day, target company shareholders earn positive and significant CAARs of 27.23 percent (Z value, 15.83). Substantial CAARs accrue to the shareholders of target companies in the period from -30 to 0 day. Only about 9 percent gains are earned after the announcement period. The results indicate that market anticipates the event to take place and stock prices incorporate most of the information content of the event at and before the event day. CAARs are positive and significant for 60 days in the 61-day event window. As the CAARs are significant for the 61-day event window (i.e. on day +30), and also on majority of the days in the event window, the null hypothesis that CAARs to the target company shareholders in response to the takeover announcement are not significantly different from zero is rejected.

Results Based on Log Returns — Event Window: 61 Days (-30 to +30)

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Table 5 shows that AARs, computed using log returns, to the target company shareholders for 61-day event window are positive for 47 days but significant only for 20 days, and negative for 14 days but not significant for all these days. However, they are positive and significant for 20 days. On the day of announcement, AARs to the target company shareholders are significant at 3.31 percent (Z value, 10.65). AARs are positive and significant continuously from day -7 to +2. This implies that takeovers are anticipated a few days before the event day and the information content of the event is almost complete within two days of the announcement of the takeover. We note that the AARs are insignificant for most of the days in the 61-day event window.

The CAARs of 27.40 percent gained by the target company shareholders, computed using log returns, are significant (Z value, 11.62) even when the results are tested by standardizing ARs. Further, CAARs are significant for 59 days in the 61-day event window. The effect of takeover announcement in the pre-announcement period is large with CAARs of 22.53 percent which is statistically significant at 5 percent level. Major gains accrue to the target company shareholders in the period from day -30 to day 0. The implication of this result is that market anticipates the event to happen and information content of the event is impounded in the stock prices before the event day. However, another 5 percent CAARs are realized by the shareholders in the days subsequent to the

### Table 4: AARs and CAARs to Target Company Shareholders based on Raw Returns with Z values

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The results of wealth effects of takeover announcement on the target company shareholders computed for a number of event windows are presented in Table 6. The CAARs, based on the raw returns and also log returns, are positive and significant for all the event windows. CAARs, based on raw returns, vary from 3.63 percent (Z value at 5%, 11.66) for one-day event window (day 0) to 36.68 percent (Z value at 5%, 14.08) for 61-day event window (-30 to +30). Similarly, for log returns, CAARs vary from 3.31 percent (Z value at 5%, 10.86) for one-day event window (day 0) to 27.4 percent (Z value at 5%, 11.66) for 61-day event window (-30 to +30). As shareholders realize CAARs which are positive and significant for all the event windows, the null hypothesis that CAARs to target com-

Table 5: AARs and CAARs to Target Company Shareholders based on Log Returns with Z values

<table>
<thead>
<tr>
<th>Event Day</th>
<th>AAR</th>
<th>Z Value</th>
<th>CAAR</th>
<th>Z value</th>
<th>Event Day</th>
<th>AAR</th>
<th>Z Value</th>
<th>CAAR</th>
<th>Z value</th>
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</table>
pany shareholders in response to the takeover announcements are statistically equal to zero is rejected. Thus, both under raw returns and log returns a major portion of CAARs to target company shareholders are being realized at or before the announcement date suggesting that either there was a leakage of information to the market before the event day or that the market anticipated the takeover announcement. Interestingly, a small part of CAARs is realized by the target shareholders in the post-takeover announcement period indicating that the market took some time to absorb fully the information content of the event.

This study has examined the stock price response to the announcement of takeovers on the target company shareholders and found that CAARs to target companies are positive and significant in all cases. The CAARs realized by target company shareholders are positive and significant at 36.68 percent for raw returns. The target company shareholders experience positive and significant CAARs of 27.40 percent when log returns are used. A vast majority of studies which study the wealth effect of M&A announcement report large and significant cumulative average ARs to the target companies. These results are consistent with the conclusion of the earlier studies (discussed earlier) that target company shareholders get large premiums. For all the event windows considered in the study within a broad event window of 61 days, the target company shareholders realize large and significant CAARs. Our result of 36.68 percent for raw returns and 27.40 percent for log returns are comparable with the results summarized in review articles: Jensen and Ruback (1983), Jarrell, et al. (1988), Datta, et al. (1992), and Bruner (2002). In their comprehensive summary article, Jensen and Ruback (1983) report approximately 30 percent positive average gains to the target shareholders in successful takeovers and 35 percent in the case of unsuccessful takeovers (p.11). Summarizing the results for 663 tender offers between 1962 and 1985, Jarrell, et al. (1988) report that gains to targets in successful takeover bids averaged 19 percent in the 1960s, which increased to 35 percent in the 1970s. For the period 1980 to 1985, the gains slightly decreased to 30 percent (p.51). The analysis of the empirical estimates examined in Datta, et al. (1992) indicates that the shareholder gains for target firms in the month of M&As announcement is approximately 22 percent (p.75).

Table 6: CAARs to Acquiring Company Shareholders

<table>
<thead>
<tr>
<th>Event Window</th>
<th>Raw Returns</th>
<th>Log Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CAAR</td>
<td>Z Value</td>
</tr>
<tr>
<td>61 days (-30 to +30)</td>
<td>0.3668</td>
<td>14.0752</td>
</tr>
<tr>
<td>51 days (-25 to +25)</td>
<td>0.3030</td>
<td>13.6886</td>
</tr>
<tr>
<td>41 days (-20 to +20)</td>
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<td>16.8444</td>
</tr>
<tr>
<td>31 days (-15 to +15)</td>
<td>0.2574</td>
<td>15.1039</td>
</tr>
<tr>
<td>21 days (-10 to +10)</td>
<td>0.2241</td>
<td>15.5666</td>
</tr>
<tr>
<td>11 days (-5 to +5)</td>
<td>0.1694</td>
<td>15.8295</td>
</tr>
<tr>
<td>9 days (-4 to +4)</td>
<td>0.1546</td>
<td>15.9408</td>
</tr>
<tr>
<td>7 days (-3 to +3)</td>
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<td>15.6134</td>
</tr>
<tr>
<td>5 days (-2 to +2)</td>
<td>0.1131</td>
<td>15.9951</td>
</tr>
<tr>
<td>3 days (-1 to +1)</td>
<td>0.0837</td>
<td>15.3425</td>
</tr>
<tr>
<td>1 day (0 day)</td>
<td>0.0363</td>
<td>11.6597</td>
</tr>
<tr>
<td>31 days (-30 to 0)</td>
<td>0.2723</td>
<td>15.8362</td>
</tr>
<tr>
<td>26 days (-25 to 0)</td>
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<td>15.9781</td>
</tr>
<tr>
<td>21 days (-20 to 0)</td>
<td>0.2174</td>
<td>15.5893</td>
</tr>
<tr>
<td>16 days (-15 to 0)</td>
<td>0.1952</td>
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</tr>
<tr>
<td>11 days (-10 to 0)</td>
<td>0.1682</td>
<td>16.3049</td>
</tr>
<tr>
<td>6 days (-5 to 0)</td>
<td>0.1190</td>
<td>15.5336</td>
</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>2 days (-1 to 0)</td>
<td>0.0614</td>
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</table>
Bruner (2002) also reports CAARs in the range of 20-30 percent (p.51). Campa and Hernando (2004) after analysing 13 recent studies, report large CAARs to the shareholders of target companies although they qualify their conclusions that these are significantly lower for transactions which have taken place more recently (p.50, 64). The results of our study are consistent with the opinion expressed by Campa and Hernando (2004) on the review of studies that “CAARs are also detected in the days prior to the announcement date, suggesting that the market anticipates information on the deals” (p. 50). The results of CAARs in the days following the announcement also substantiate findings by Campa and Hernando (2004) that “larger the event window the greater the marginal increase in the amount and significance of CAARs” (p.50). However, Campa and Hernando (2004), in their empirical study, find significant 9 percent CAARs to the targets on the announcement of M&As for the event window of 61 days, i.e. day -30 to +30 (p.64). This estimate is lower than that of this study. In the review of literature, they report large CAARs to target company shareholders which range between 20 percent and 30 percent (p. 50). A study by Bradley, Desai, and Kim (1988) for a sample of 236 successful tender bids, finds a gain of 19 percent to the target shareholders for the period 1963 to 1968, 35 percent for the period 1968-1980, and 35 percent for the period 1981-1984. These gains slightly decreased between the period 1963 and 1984 to 32 percent (p.11). Cybo-Ottone and Murgia (2000) report around 12 percent CAARs to the targets for a two-day event window (-1, +0) and 15-16 percent for a 41-day event window (-20, +20) event window (p.843, 844). Even though the results of this study are lower than those of their results for the two-day event window, they are comparable with the 41-day window of this study. The results of 6 percent for the two-day event window (-1, 0) are also slightly lower than Cornett and Tehranian (1992), who found 8 percent average gains (p. 231). Further, the results of CAARs to target company shareholders (27.40%) for 61 days (-30, +30) are higher than that of Georgen and Renneboog (2004), who report an AR of 9 percent (p.19). Dodd and Ruaback (1977) find a significant 20.53 percent cumulative monthly average abnormal gain for target firms where tender offer is successful and a significant 18.96 percent in tender bids which are not successful for the announcement month (p.563). Bradley et al. (1983) reveal that target company shareholders experience cumulative ARs of 40.20 percent for the event window of one month before to one month after the event, and 39.29 percent for the two-month event window of one month before to the event month (p.193).

Comparing the results of this study with those of the other Indian studies, it is found that target company shareholders experience large and statistically significant ARs of 3.63 percent and 3.31 percent on the day of announcement of takeovers (day 0) based on raw returns and log returns, respectively. The gains to target company shareholders for different event windows are: 7.81 percent between -2 and 0 day, 16.82 percent between -10 and 0 day, and 27.23 percent between -30 to 0 day based on raw returns. Similarly, the shareholders gain significant CAARs of 7.08 percent between -2 and 0 day, 14.89 percent between -10 and 0 day, and 22.53 percent between -30 and 0 day based on log returns. In the post-announcement period (+1 to +30), target companies earn small but significant CARs of 9.45 percent and 4.87 percent based on raw returns and log returns, respectively. The results for pre-announcement period are comparable with the results obtained by Pandey (2001) who examines the impact of takeover announcements on the target company shareholders and reports that the target firms’ stock prices earn significant returns of 3.49 percent on day 0, 8.7 percent returns between -2 and 0 day, 12.1 percent between -10 and 0 day, and 18.43 percent between -30 and 0 day based on market and risk adjusted model. Further, Pandey also shows that the gains to the shareholders of target companies are 4.69 percent on day 0, 10.54 percent between -2 and 0 day, 16.81 percent between day -10 to day 0, and 30.02 percent between day -30 and day 0 based on the market-adjusted model. These ARs are both positive and statistically significant. One of his notable observation is that ARs in the run-up to open offer announcements are about 30 percent of which about 10 percent is in the last three days. However, the ARs in the five days after the announcement were negative and insignificant, in his study. Chakraborty (2010), who examines the stock price responses of target companies to takeover announcements in the financial service sector in India, also reports positive and significant CARs of 5.98 percent 10.11 percent , and 2.32 percent for event windows between -20 and -2, -20 and +20, and -1 to +1, respectively. But the same does not hold for the post-event period +2 to +20 during which the results are positive but insignificant at 1.79 percent . The magnitude of gains to target companies as reported in Chakraborty (2010) for the pre-takeover announcement period are smaller com-
pared to the results of this study and also that of Pandey (2001). This may be on account of the study of financial service sector companies by Chakraborty (2010). The findings of this study suggest that the shareholders of target firms earn significantly positive ARs on takeover announcements. However, on the basis of a closer analysis of the results, the author reveals that the positive returns was the contribution of only 19 firms while for the remaining 48 firms, there is no market reaction on takeover announcements. Based on the analysis, Chakraborty concludes that except for a few cases, which show positive returns, takeovers in the financial services sector in general do not evoke market reaction. The findings of this study, similar to that of Pandey (2001) and Chakraborty (2010), suggest that a major portion of CAARs to target company shareholders are being realized at or before the announcement date. Our evidence indicates that either there was a leakage of information to the market before the event day or that the market anticipated the takeover announcement event to take place. The results also suggest that large stock holding by the promoters or the management may be the reason for large gains to the shareholders of target companies, as opined by Pandey (2001). This is because in the closely held companies, any resistance by the management of a target company to the takeover proposal, results in failure of the open offer and hostile takeover is unimaginable and impractical. Pandey (2001) ascribes the significant positive value of takeovers for targets on and before announcement to the private value of corporate control and not to the improvement of firm’s future performance. While this study has not examined this issue, Chakraborty has explored whether the significant target returns are due to private value of corporate control. But she finds no valid reason as even in firms with no significant ARs in response to takeover announcement, the pattern of shareholding was similar to that of firms which experienced ARs before the takeover announcements.

This study finds that a small part of CAARs is realized by the target shareholders in the post-takeover announcement period indicating that the market took some time to absorb fully the information content of the event. The finding for the post-takeover announcement period is also consistent with Pandey (2001) and Chakraborty (2010). However, this study finds small but statistically significant CAARs in the post-announcement period. While Pandey finds negative and statistically insignificant returns for the period after announcement (-2.97% for an event window of +1 to +5 days), Chakraborty finds positive but statistically not significant gains for the above-mentioned period (+1.79% for an event window of +2 to +20).

CONCLUSION

This paper examines the stock price responses of target companies to the announcement of takeovers in India for nine years from April 1, 1998 to June 30, 2007 using a sample of 227 companies. The ARs, AARs, and CAARs are computed for a 61-day window period employing the standard market model. Regression parameters of the market model (α and β) are computed taking an estimation period of 250 days (-280 to -31 days) preceding the date of announcement of takeovers. Further, the results are analysed for many smaller event window periods within a broader event window of 61 days. The results, are based on both raw returns and log returns. The results, both before standardizing and after standardizing the ARs of the individual target companies are tested. Results of this study indicate that takeovers in India create wealth for the target company shareholders. They earn a cumulative average abnormal return of 27-37 percent for an event window of 61 days surrounding the announcement of takeovers. The gains to the shareholders are 37 percent when raw returns are used and 27 percent when log returns are used. The conclusion does not vary across methods (i.e. for raw returns or log returns). Similarly, irrespective of the testing procedure used (i.e. non-standardized or standardized AR method), the conclusions remain unchanged. The findings are analogous with that of the vast majority of studies conducted in other countries and a few studies conducted in India. The results for several smaller window periods within the broader event window of 61 days also show that shareholders of target companies earn large and statistically significant CAARs. An important observation of this study is that both under raw returns and log returns, a major portion of CAARs to target company shareholders is realized at or before the announcement date suggesting that either there was a leakage of information to the market before the event day or the market anticipated the takeover announcement. Interestingly, a small part of CAARs is realized by the target shareholders in the post-takeover announcement period indicating that the market took some time to absorb fully the information content of the event. Therefore, we conclude that wealth gains
accrue to the target company shareholders and also that the Indian market does not exhibit semi-strong form efficiency.

The practical implication of the study is that there is a large and significantly positive wealth effect on the target company shareholders in response to the announcement of takeovers. This indicates that takeovers are being perceived by the capital markets as important tools for improving the performance of target shareholders by changing the target company management. It is also implied from the study that the Indian capital market is not semi-strong form efficient as the target company shareholders experience positive and significant CAARs even after the event day. The conclusion of this study provides input to both the acquiring and the target company shareholders. The acquiring company tends to overbid for acquiring the target company and in the process benefits the target company shareholders at the cost of acquiring company shareholders. Therefore, the management of the acquiring company should be cautious. Similarly, the takeovers offer an opportunity to shareholders of target companies and general investors to make profits both in the period before and after the announcement of the takeover bid by going long on the target company stocks.

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INTERNATIONAL ECONOMICS
An Introduction to Theory and Policy
Rajat Acharyya
9780198079767 Paperback ₹ 650

Unlike most textbooks on the subject that begin with model-specific discussions, this book takes a distinctively different approach. It first introduces the basic principles underlying international exchange, trade, and exchange rate policies, and then goes on to offer alternative theoretical explanations for these principles by using specific models of trade. Accessible and up-to-date, the book offers handy study aids in the form of clearly defined summary concepts, keywords, case studies, problem-solving exercises, and suggested reading for students and teachers of international economics.

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Engaging with diverse perspectives on human development, human rights, and gender justice, this handbook provides a comprehensive understanding of the development-population linkages. Taking forward the debates and policy questions raised by the National Population Policy 2000, the handbook analyses a wide range of issues such as:

- food security, climate change, and the environment; • potential of and opportunities for youth and the girl child; • public health and reproductive health services; • women’s empowerment and fertility choices; and • role of law, media, and public action in population stabilization.
A Balanced Approach towards Market Orientation

Gurjeet Kaur, R D Sharma, and Nitasha Seli

There has been a lot of research on implementation of the concept and examination of the link between market orientation and business performance. In these offerings, scales such as MARKOR, introduced by Kohli, Jaworski, and Kumar (1993), and MKTOR, introduced by Narver and Slater (1990) have been frequently employed without further investigation. Analogous to this academic endeavour, few marketing researchers have raised doubts regarding the reliability and validity of the extant scales and have also shown concern towards the definition of the concept.

Apropos, the present study has been planned to examine the degree of market orientation from management perspective and also to develop a scale for measuring market orientation in the selected public and private sector banks, viz., State Bank of India (SBI), Punjab National Bank (PNB), and The Jammu and Kashmir Bank Pvt. Ltd. (JKB). The study finds:

• Significant difference between the responses of management with respect to Internal Market Orientation (IMO) and External Market Orientation (EMO). The management of all the three major banks, viz., PNB, SBI, and JKB is more optimistic with regard to the three dimensions of EMO than that of IMO.
• Significant impact of internal market orientation on the overall market orientation as compared to external market orientation.
• Positive and significant relationship between internal customers’ and external customers’ satisfaction; internal customers’ satisfaction and business performance, and external customers’ satisfaction and business performance.

For improving market orientation in the banking sector, managers are suggested to take the following initiatives:

• Initiate crucial steps towards developing a healthy work environment – delineating employee expectations; discussing goal achievement, tracking performance and feedback; and devising an appropriate mechanism for follow-up and employee appraisal. Employees should be made the root cause identifiers and solvers whereas managers must be problem eradicators.
• Ensure parallel inter- and intra-departmental communication. An open door policy can be encouraged to communicate through various formal and informal channels so that inter-departmental work teams can perform efficiently.
• Conduct internal market research once a year to generate information pertaining to the job requirements of internal customers.
• Retain its employees through the successful implementation of internal marketing strategies which in turn demands proper understanding of employees’ work-related needs, feelings, emotions and intellect, proper treatment as an individual, open and free communication with the management, and establishing and managing effective long-term employee-management relationships.