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Stock Market Reaction to Successful and Unsuccessful Mergers

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STOCK MARKET REACTION TO SUCCESSFUL AND UNSUCCESSFUL MERGERS

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Can investors assess the probability of success for a new merger? There have been numerous studies of the determinants of merger success and market reaction to merger announcements. However, there has been no systematic analysis of how well the stock market can anticipate successful or poor mergers at the time of their inception. Such recognition should be revealed in the stock market returns of the firms involved at the time of the merger announcement. It is common practice for the business media to report the share price movements in response to a merger announcement. However, the interpretation of these price movements requires caution. The change in market values in response to a merger announcement will reflect both the expected value creation (or destruction) resulting from the merger as well as the distribution of the gains (or losses) from the negotiation process between the two firms. Previous research into market response to merger announcements suggests that most of the value created through merger is likely to be captured by the acquired firm's shareholders. However, the amount of value created, regardless of its distribution, should reflect the market's best guess about the future prospects for the combined entity.

This study examines the market's spontaneous ability to make such an assessment. The ultimate success or failure of a merger will depend on a variety of factors, some of which are unforeseeable at the time of the announcement. There are four broad categories of sources of failure to consider. First, the merger may be strategically unsound. The partners may have no clear basis for synergy or compelling advantage from combined operation. Second, the merger may be forced to operate in a hostile economic environment. A downturn in the business cycle may make a potentially workable merger prove unsuccessful. Third, random events may occur which jeopardize the merger. A key executive of one partner may leave, a technological breakthrough may occur benefiting a rival, or labor problems may emerge. Finally, the managment of the post-merger process may be deficient. For example, it is difficult to integrate two disparate organizations into a single cohesive unit. Corporate cultures may clash, management policies may contradict, and a variety of problems may arise in consolidating the two firms.

The vast majority of research into market efficiency suggests that the market is reasonably efficient at valuing securities on the basis of all available information. However, the last three sources of merger failure cited above reflect information which will be unavailable to the market at the time of the announcement. Nonetheless, the market should be able to make some assessment of the strategic fit between merger partners. In the extreme cases of the decade's best and worst mergers, one may expect that a significantly different reaction to merger announcements would be observed. This article describes an experiment to test this hypothesis.

The literature regarding acquisition activity is both broad and rich. Studies by Mandeleker [16], Langetieg [15], and Dodd [6], as well as other work surveyed

by Mueller [17], suggest that stockholders of acquired firms benefit while those of acquiring firms roughly break even. This result is further supported by the findings of Asquith [1], Jensen and Ruback [14], and Shad [18] on premiums paid to selling stockholders over the pre-merger value of their shares. Dodd [7] notes further that the evidence on returns to bidding firms is far from conclusive, but that most work reports average abnormal returns close to zero, an indication that the "lion's share" of the gains from a merger transaction are earned by target firm shareholders. Additionally, he states that these "broad statistical averages" hide the fact that merger announcements are accompanied by a surprising number of bidding firm stock price declines (as many as 40 percent of the companies in some studies). Ellert [9] found that poorly performing firms tended to be targets for acquisition. Elgers and Clark [8] and Asquith and Kim [2] among others have approached the association between acquisition performance and acquisition strategy. To date there has been no study of the stock market's initial response to what would later be called a good or bad merger. In other words, there has been no examination of security returns around the announcement date of mergers which would subsequently be deemed successful or unsuccessful by various sources.

Data and Methodology

The sample set of good and bad mergers was gathered from two sources: **Fortune's** "The Decade's Worst Mergers" [12] and **Business Week's** "Do Mergers Really Work?" [5]. The **Fortune** mergers were based on a survey of three dozen merger and acquisition specialists. The **Business Week** transactions were selected by staff writers. The criteria used to evaluate merger success included the profitability of the combined entity, shareholder returns in the years following the merger, and market share changes. Table 1 lists 11 good mergers and 14 bad mergers extracted from these sources and includes the acquirer, the acquiree, and the **Wall Street Journal** announcement date. The sample was cleansed by studying news reports for each firm both prior to and after the announcement date to insure that news of the merger was not publicly available before the announcement and that no other significant events were occurring at these firms during the analysis period. Unsuitable firms were discarded from the sample. It should be noted that many of the good mergers in Table 1 are in the high technology sector and many of the poor mergers are energy related. This could affect the results if there is a prevalent market psychology towards rewarding or penalizing mergers in these sectors.

The method employed in analyzing acquiring firm stock market returns surrounding the announcement of the merger was residual analysis. This technique is useful in isolating abnormal returns arising from a specific event, such as the announcement of a merger. Fama, Fisher, Jensen and Roll (FFJR) [11], in a landmark article, used the cumulative average residual technique to examine the adjustment of stock prices to new information. The legitimacy of this approach has been well supported by Brown and Warner [3,4], among others. In consonance with this procedure, 60 months of return data were gathered for each of the acquiring firms in both the good and bad merger categories. These data were collected two months prior to a 31-trading day "window" encompassing disclosure

Table 1
Sample Mergers

Successful

Acquirer	Acquiree	Announcement Date
United Technologies	Otis Elevator	3/30/76
LTV	Lykes	11/7/77
Dayton-Hudson	Mervyn's	1/24/78
Heinz	Weight Watchers	5/5/78
United Technologies	Carrier	9/19/78
Burlington Northern	St. Louis-San Francisco Railway	9/26/78
United Technologies	Mostek	9/28/79
Conagra	Banquet Foods	9/16/80
American Express	Shearson, Loeb, Rhoades	4/22/81
Nabisco	Standard Brands	4/23/81
Allied Corp.	Bendix	9/23/82

Unsuccessful

Acquirer	Acquiree	Announcement Date
General Electric	Utah International	12/16/75
Mobil Corp.	Marcor	3/15/76
ARCO	Anaconda	3/17/76
Pan American	National	9/8/78
AMOCO	Cyprus Mines	4/12/79
EXXON	Reliance Electric	5/21/79
Schlumberger	Fairchild	5/22/79
Wickes	Gamble-Skogmo	12/12/79
Warner-Lambert	IMED Corp.	6/8/80
Westinghouse Electric	Teleprompter Corp.	10/16/80
Standard Oil (Ohio)	Kennecott Copper	3/13/81
Fluor Corp.	St. Joe Minerals Corp.	4/2/81
Baldwin-United	MGIC	12/15/81
McKesson Corp.	SKU Inc.	10/24/83

of the merger (15 days on either side of the announcement day plus the announcement day).

The 60 months of return data for each acquirer and the corresponding 60 months of returns on the Standard and Poor's 500 Index were used to estimate the parameters of the market model described by Fama [10]:

$$R_{jt} = a_j + b_j R_{mt} + e_{jt}, \quad (1)$$

where

R_{jt} = the return on the j^{th}security in month t (j=1,25;t=1,60),
a_j = the intercept term for the j^{th} security,
b_j = the regression coefficient for the j^{th} security,
R_{mt} = the return on the market index (S&P 500) in month t, and
e_{jt} = the error term for the j^{th} security in month t.

In order to estimate abnormal returns during the 31-day "window" period for each of the 25 firms in the total sample, equation (2) was employed:

$$AR_{jt} = R_{jt} - (a_j^* + b_j^* R_{mt}), \quad (2)$$

Where

AR_{jt} = the abnormal return on the j^{th} security on day t (j=1,25; t=−15..,0,..+15),
R_{jt} = the actual return on the j^{th} on day t,
a_j^* = the market model intercept parameter from equation (1) for the j^{th} security,
b_j^* = the market model regression coefficient parameter from equation (1) for the j^{th} security, and
R_{mt} = the actual return on the market index (S&P 500) on day t.

Daily average abnormal returns (AAR) were determined for the "Window" period by summing AR_{jt}s across firms in the entire sample, the successful merger group, and the unsuccessful merger group and then dividing by 25, 11, and 14, respectively. The cumulative average abnormal return (CAR) for each of these three portfolios was calculated on a daily basis during the 31-day announcement period by incrementally summing group AARs. In the absence of abnormal performance, the expected value of both AARs and CARs is zero. If the market is able to differentiate between successful and unsuccessful mergers, then the CAR for the unsuccessful merger portfolio should fall significantly below that of the successful merger portfolio. This does not imply that the market is smarter than management in determining which mergers are likely to succeed. This only assumes that the stock market is able to recognize value when it is created, such as when two assets have a greater combined earning power than when they operate singly. A two-tailed t-test was conducted in order to test this hypothesis.

Results

The cumulative average abnormal returns for the full sample, the group of successful acquirers, and the group of unsuccessful acquirers, are presented in Table 2. Interestingly, in absolute terms, the findings are different than expected. The

Table 2

Cumulative Average Abnormal Returns For Acquiring Firms

Day	Total	Unsuccessful	Successful
−15	0.000	0.000	0.000
−14	−0.006	−0.006	−0.005
−13	−0.010	−0.012	0.008
−12	−0.013	−0.015	−0.009
−11	−0.008	−0.004	−0.014
−10	−0.003	0.004	−0.011
−9	−0.007	−0.007	−0.007
−8	−0.010	−0.012	−0.009
−7	−0.014	−0.013	−0.014
−6	−0.015	−0.018	−0.011
−5	−0.011	−0.011	−0.010
−4	−0.005	−0.005	−0.006
−3	−0.006	−0.010	−0.001
−2	−0.001	−0.001	−0.001
−1	−0.003	0.002	−0.011
0	−0.007	−0.006	−0.009
1	0.000	0.006	−0.008
2	−0.006	0.000	−0.014
3	−0.002	0.005	−0.012
4	−0.009	−0.002	−0.019
5	−0.007	0.000	−0.016
6	−0.004	0.008	−0.018
7	−0.007	0.012	−0.031
8	−0.010	0.006	−0.031
9	−0.011	0.005	−0.032
10	−0.006	0.013	−0.030
11	−0.007	0.013	−0.033
12	−0.011	0.006	−0.033
13	−0.007	0.012	−0.030
14	−0.006	0.012	−0.029
15	−0.011	0.004	−0.031

CAR for the entire sample of acquiring firms is negative on day + 15 following the merger announcement. At the same time, the + 15 day CAR for the unsuccessful merger portfolio is slightly positive while that for the successful merger portfolio is negative. These results are shown in Figures 1 and 2 as plots of incremental CARs over the "window" period for the complete sample and the successful versus unsuccessful acquirers.

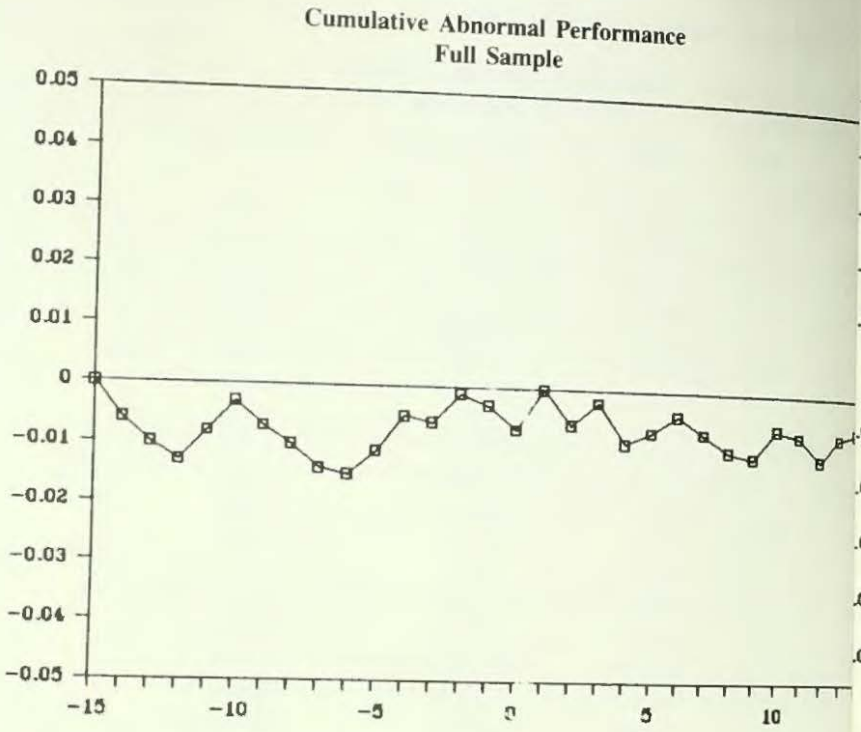

Figure 1. Cumulative Average Abnormal Returns: Full Sample.

It is important to note that none of the results cited above were statistically significant. At the 95 percent confidence level, the end-of-period CAR for the total sample was not significantly different from zero (t= .018). The same finding held true for the subsamples. Neither the CAR of the successful mergers (t= .102) nor the CAR of the unsuccessful mergers (t= .120) were statistically different from zero. Finally, there was no significant difference between the end-of-period CAR for the successful and the unsuccessful mergers (t= .810). Additionally, the plots of cumulative abnormal performance in Figures 1 and 2 indicate only minor deviations from zero throughout the whole 31-day announcement interval.

This outcome requires interpretation. As stated at the outset, the eventual success or failure of a merger will depend on a variety of factors. The strategic rationale for the merger, the price paid by the acquiring firm (and the resulting wealth transfer), the smoothness of the post-event integration process, as well as chance occurrences of both a positive and negative nature subsequent to the combination all play a role in determining the ultimate efficacy of an acquisition. This paper addresses only the initial reaction of the stock market to the news of mergers which were, with hindsight, judged successful or unsuccessful by the business media and other analysts. In a completely efficient market, investors will swiftly

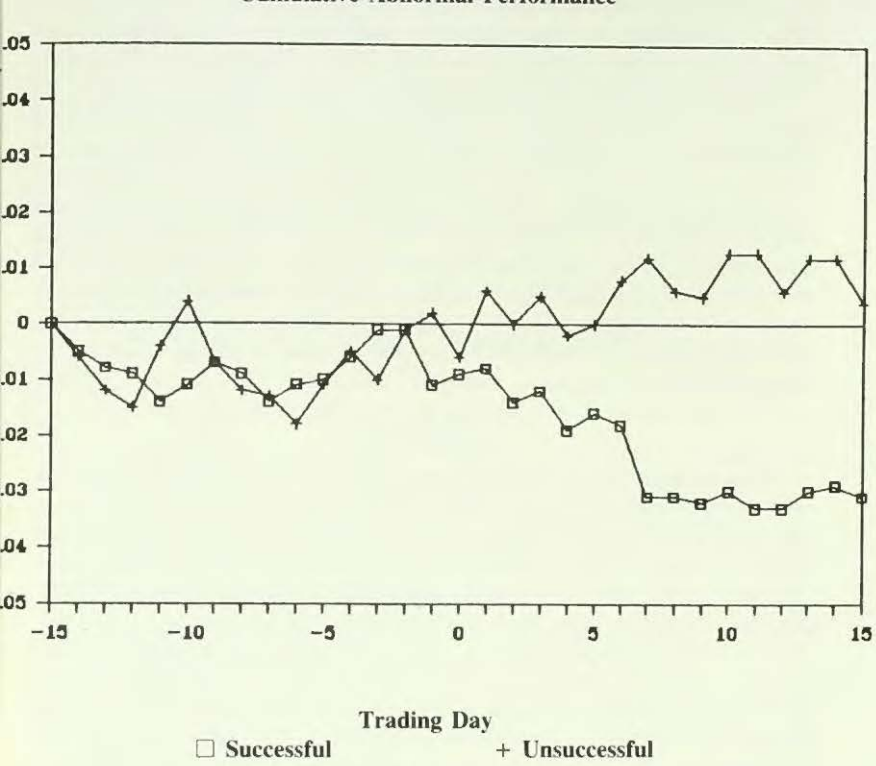

Figure 2. Cumulative Average Abnormal Returns: Successful and Unsuccessful Acquirers.

employ all available information to evaluate the potential success of a merger and, through the market process, value the participants' securities accordingly. This study's findings showed little impact or discrimination in this valuation process.

The experiment described above produced a counterintuitive result. The early stock market reaction to the announcements of the decade's worst mergers was not statistically different from the reaction to disclosure of the decade's best mergers. This finding could reflect several phenomena. It is possible that the market is simply unable to discriminate between what will be good or bad mergers at their inception. This inability may be based on an incomplete information set or a lack of understanding of the factors affecting merger performance. An alternative interpretation could be that the market will eventually revalue the acquirers' stocks, but the process is slower than would be observable over the six-week trading period surrounding the merger announcement. The reasoning behind this explanation involves the speed with which ensuing information concerning the merger's impact on the company reaches the market. Positive and

negative fallout from the acquisition may come to light only over an extended term. Consequently, the revaluation process may take place on a piecemeal basis over months or even years. This may reflect the difficulties in integrating the organizations of two separate firms into one operation. Some authors suggest that the impediments arising from a lack of organizational fit between the two partners may be as severe as problems arising from a lack of strategic fit [13]. The severity of such obstructions may become apparent only after a sustained period of time.

A further consideration in explaining why, even in the case of the very best and worst mergers, the market does not initially produce substantially differing returns lies in the potential effect of later events on the acquisition. It is possible that subsequent, and in all likelihood unpredictable, circumstances play a dominant part in determining the ultimate success or failure of a merger. This is a somewhat disturbing hypothesis, for it calls the value of strategic planning for mergers into question.

Conclusions

This study has examined the stock market reaction to announcements of mergers which later proved to be extremely successful or unsuccessful. Previous research into merger announcements includes evidence that investors generally reduce the value of an acquiring firm's stock during the period following the announcement. This study contributes to this area of research by investigating whether the market discriminates between mergers which ultimately succeed and those which fail. The results described above indicate that the market did not significantly differentiate between the decade's best and worst mergers. This could indicate that either insufficient information exists at the time of the announcement to evaluate the prospects for success or that the market has no model with which to make such an evaluation. The role of later chance events is also likely to be significant in determining merger performance. The implication of this finding is that stock price movements in response to merger announcements must be interpreted with extreme care.

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