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THE IMPACT OF MERGER BIDS ON THE WELFARE OF THE PARTICIPATING FIRMS' SECURITYHOLDERS

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FOR DISCUSSION PURPOSES ONLY

"The Impact of Merger Bids on the Welfare of the Participating Firms' Securityholders"

In order to understand what motivates corporate mergers, two questions must be answered: first, what are the benefits of combining two separate firms, and second, who receives these benefits.

The sources of potential benefits can be classified broadly as operational, managerial, and financial. Operational benefits arise if combining the operating activities of the firms, such as production or marketing, creates economies of scale. Managerial benefits arise if mergers improve the efficiency of management. Together, these operational and managerial benefits represent real synergies arising from changes in the real activities of the firm. Financial benefits result if the merger provides new portfolio opportunities to investors. Such opportunities may include reductions in corporate tax liability or diversification of risk at the firm level. These financial benefits may increase a firm's value in the capital market,[1] but they are separate from any increases in firm value which are the result of altering the firm's real functions.

The second question of who receives the benefits from the merger has already been partially answered in the literature. Several merger studies have tested whether the stockholders of the merging firms benefit in a merger. These studies, however, do not provide a complete answer to the question, because they do not examine the effect of mergers on other potential beneficiaries. Bondholders, creditors, managers, and employees of the merging firms also have claims on the firm's assets and may share in the benefits of mergers. Thus a complete study must examine the impact of mergers on all the claimholders of the merging firms.

The purpose of this paper is first to examine how corporate mergers affect all the claimholders whose claims are publicly traded in the capital market, i.e., both the stockholders and the bondholders; and second, to examine if mergers have any pure financial effects on firm valuation. In the sections that follow we briefly review recent studies on corporate mergers and establish the need for yet another empirical study. We then present empirical evidence measuring the effect of mergers on the welfare of the merging firms' securityholders. In the concluding section, we discuss the implications of the empirical results.

I. The Issues

Many authors [e.g. Myers (1968), Schall (1972), and Rubinstein (1973)] have argued that in a perfect capital market, mergers will have no pure financial effect on firm valuation. That is, although corporate mergers may generate real synergies which have value, in the absence of real benefits a merger will not change the total market value of the merging firms. Recent empirical studies by Mandelker (1974), Langetieg (1979), Asquith (1979), and Dodd (1980), however, have provided evidence that mergers have a favorable effect on the market value of the common stocks of merging firms. These studies have shown that although the acquiring firms' stockholders are not significantly affected by merger, the acquired firms' stockholders earn significant positive abnormal returns.

These empirical studies provide rather conclusive evidence concerning the effect of mergers on the stockholders of the merging firms, but they still leave many important questions unanswered. First, the samples used by Mandelker, Langetieg, Asquith, and Dodd include mergers which may have real synergies. Thus, these studies do not tell us whether real or financial benefits provide the positive abnormal returns to the acquired firm's stockholders. To answer this question it is necessary to examine a sample of mergers that have no real synergies. Conglomerate mergers provide such a sample since most conglomerate mergers result in little, if any, combination of real activities, and therefore most of the effect on firm valuation is purely financial.[2]

Second, these merger studies examine the returns of only one group of potential beneficiaries, the stockholders. It is possible that the positive abnormal returns reported come at the expense of other potential

beneficiaries. That is, mergers may impose a loss on some claimants of the merging firms, and the stockholders' positive abnormal returns may simply reflect negative abnormal returns to these other claimants. In fact, Jensen and Meckling (1976) provide a convincing argument that there is an incentive for the shareholders of leveraged firms to expropriate the bondholders' wealth by undertaking risky investment projects. Since a merger is also a corporate investment, it follows that there is an incentive for the shareholders to acquire firms which increase the variability of the firm's cashflow. By increasing the firm's risk through merger, the stockholders receive positive abnormal returns even if there is no real synergy. The bondholders lose because of the increase in the default risk of the existing debt.[3] The positive abnormal returns represent a wealth transfer from bondholders to stockholders.

Higgins and Schall (1975), Galai and Masulis (1976), and Kim and McConnell (1977) argue quite the opposite. They argue that mergers reduce the risk of default of the merging firms by combining two separate cashflows that are less-than-perfectly correlated. A reduction in the default risk in turn increases the market value of the merging firms' outstanding debt. Without any real synergies or pure financial effects, the market value of the post-merger firm is simply the sum of the pre-merger firms' market values. This means that the increase in the market value of outstanding debt leads to a concomitant decline in the market value of the merging firms' equity. That is, mergers have a diversification effect at the firm level, and this effect creates wealth transfers from stockholders to bondholders.

These opposite predictions on the direction of the wealth transfers between stockholders and bondholders stem from focusing on different facets of corporate mergers. The Jensen and Meckling approach focuses on the

incentives inherent in the agency relationship between stockholders and bondholders, the "incentive effect," while the Higgins and Schall argument focuses on the effect of firm diversification on securityholders, the "diversification effect." How these two effects interact and which one actually prevails cannot be answered by examining the stockholders' returns alone, because wealth transfers are not the only possible financial consequence of merger.

Other financial effects which may have provided the positive stockholders' returns reported in merger studies include possible changes in corporate tax liability due to merger; e.g., reductions in tax liability from immediate utilization of tax losses when a profitable firm merges with an unprofitable firm or from changes in the interest tax shields that may arise from capital structure changes. These tax effects may provide stockholders with positive abnormal returns even if there is no wealth transfer from bondholders. Bondholders' claims to corporate earnings, however, are prior to that of the tax-collector, and hence possible changes in corporate tax liability have no (or at most a negligible) effect on bondholders' returns. Thus, to provide more direct evidence on wealth transfers, it is necessary to examine the returns of both stockholders and bondholders.

Kim and McConnell (1977), in a study on the co-insurance effect, provide some evidence on bondholder returns. They examined bondholders' returns around the merger date for a sample of firms that were involved in conglomerate mergers, as classified by the Federal Trade Commission, and found no statistically significant abnormal bondholders' returns. Their results seem to indicate that the "incentive effect" and the "diversification effect" cancel each other out. However, this result may be dictated by their methodology. As Brown and Warner (1980) point out in a recent article

on event-study methodologies, the choice of event dates is crucial. While Kim and McConnell use the merger date as the event date, both Asquith (1979) and Dodd (1980) have demonstrated that the merger date is not nearly as effective as the announcement date in analyzing market reaction.

In efficient capital markets changes in security prices occur when the information first becomes public. For mergers this apparently occurs on the announcement or press date. Asquith (1979) shows the market reaction at the press date is both larger and more significant than that at the merger date. In addition, the time lag between the press date and the merger date typically varies widely from merger to merger. This variance in the time lag creates so much noise when using the merger date that even if there is a systematic movement in security prices, statistical tests may not detect it. In the sample used by Kim and McConnell the average lag between press date and merger date was 6 months with a standard deviation of 5.29 months.

Finally, as Dodd (1980) and Asquith (1980) subsequently point out, merger bids sometimes fail and both the probability of a successful merger and the market's reaction is cumulative over time.[4] This in turn reduces the amount of new information available at the merger date. All of this suggests that the actual consummation of a merger has a relatively minor impact, and this may be the reason for the lack of any significant results in the Kim and McConnell study. Given this new evidence, there is reason to believe that different, more conclusive results may be found by examining the bondholders' returns around the announcement date. Furthermore, Kim and McConnell do not provide any evidence on stockholder returns in their work. To investigate completely whether conglomerate mergers have any effect on the market value of firms, it is necessary to examine the returns of stockholders and bondholders together.

This paper examines the returns to both stockholders and bondholders for firms involved in mergers that were classified as "conglomerate" by the Federal Trade Commission. The returns are all calculated using the announcement date rather than the merger date. The empirical results are important for several reasons: first, they demonstrate the effect of conglomerate mergers on all the claimholders whose returns are observable in the capital market. Second, the use of announcement date as the event date should provide more conclusive evidence on the direction of wealth transfers and shed light on how the "incentive effect" interacts with the "diversification effect" in actual mergers. Third, since conglomerate mergers have very little, if any, operating synergies, our empirical findings provide a test of whether mergers have pure financial effects on firm valuation.

II. Data and Methodology

A. Data

The sample of merging firms used in this study was selected by a method similar to that used by Kim and McConnell (1977). Their sample consisted of the complete universe of firms which met the following criteria:

1. The merger was classified as "conglomerate" by the FTC.
2. The firm engaged in a complete merger between January 1, 1960, and December 31, 1973, where the book value of the assets of the smaller firm was greater than 10% of the book value of the assets of the larger firm.
3. The firm engaged in only one such merger during the forty-eight months surrounding the merger.
4. The merging firm had long-term publicly-traded non-convertible debenture bonds outstanding for at least twenty-four months before the merger and the same bonds were outstanding for at least twenty-four months after the merger.

These restrictions are severe, and from a potential list of 2,268 firms involved in a merger or acquisition, Kim and McConnell found only 39 firms which satisfied these four criteria.[5] These 39 firms consisted of 18 acquired firms with 20 debt issues and 21 acquiring firms with 24 debt issues. The purpose of the first criterion is to eliminate possible operating economies. The second and the third criteria are imposed to free the sample from partial, minor, and multiple mergers. The fourth criterion is necessary to obtain non-convertible bond price data. In addition, a fifth criterion was added for this study:

5. All bonds which met criterion 4 also had to be outstanding at least twelve months before the announcement date of the merger.

This criterion was necessary to use the announcement or "press date" as an event date.

Initially all of our tests were performed using Kim and McConnell's sample of 39 firms and 44 debt issues. The preliminary results from these tests were mixed. Bondholders did obtain significant (at the 10% level) positive excess returns for several time periods, but these gains were not consistent over all time periods. Rather than report only these results, we felt it was necessary to expand the sample size and rerun our statistical tests. Because we wanted to keep our sample as free of contaminating influences as the original Kim-McConnell sample, we kept the five criteria listed above and extended the time period studied until December 31, 1978. This extension increased the sample size by 13 firms to 52 and the number of debt issues by 20 to 64. The total universe of firms examined also rose to 2,870.

Both the original and the enlarged samples were reduced by two bonds by eliminating two of Kim-McConnell's acquired firms. Canada Dry was eliminated because the firm had no bond that meets our fifth criterion. (The bond used in the Kim and McConnell study was outstanding 24 months before the merger but was not outstanding 12 months before the press date.) Tidewater Oil was eliminated because there was no press date. Tidewater Oil had been a controlled subsidiary of Getty Oil since 1953 and the decision to acquire control could not be properly dated. Of the 62 bonds left in the enlarged sample, 38 bonds were issued by 28 acquiring firms and 24 bonds were issued by 22 acquired firms. Although this sample size is not large, we felt that the restrictions of our criteria were important in freeing the sample of any contaminating influences.

The press date, or announcement date, is defined as the day when the news of the merger bid first appears in the Wall Street Journal. Press dates for this study were collected from the Wall Street Journal Index. A portion of the bond prices came from data originally collected for the Kim and McConnell study (1977). However, the change of the event from the merger date to the press date and the addition of more firms required considerable additional data collection. The source for all additional bond prices was the Bank and Quotation Record. The monthly stock return data for our sample firms came from the monthly CRSP files. The CRSP files did not have monthly stock returns for 2 of our sample firms and this left a sample of 48 stocks available for our stock return study. Of these 48 stocks, 27 were issued by acquiring firms and 21 were issued by acquired firms. Although this sample is slightly smaller than the bond sample, the results strongly confirm previous merger studies of stockholder returns. Thus, we felt no need to expand the sample size for stocks.

B. Methodology

B.1. Methodology for Bondholder Returns

The methodology used here to examine returns to bondholders is the same paired-comparison technique used in the Kim and McConnell study. The paired-comparison technique provides an estimate of abnormal returns for the sample bonds. Each sample bond is matched with a bond issued by a non-merging firm that possesses similar risk-return characteristics. The matching criteria used are as follows:

1. The bond rating as given by Standard and Poor's Bond Guide
2. The term-to-maturity
3. The coupon interest rate

4. Industrial bonds were paired with industrial bonds and utility bonds were paired with utility bonds.

The theoretical and empirical justifications for matching bonds on these characteristics is given in Kim, McConnell, and Greenwood (1977). Additionally, the issuing firm of a matching bond must not have engaged in any major merger during the 48-month interval which surrounds the merger of the corresponding sample firm.[6] Each bond in the matching group is considered a separate risk-adjusted index with which each bond issued by a merging firm is compared. Thus, the difference in returns between the sample bonds and the matching bonds may be considered an abnormal return which is attributable to the merger bid.

For the new sample bonds from the time period 1974-1978, matching bonds were collected from Standard and Poor's Bond Guide; while for those sample bonds which came from the Kim-McConnell study, the original matching bonds were used. The only exceptions are two matching bonds in the Kim and McConnell study which did not trade regularly during the period surrounding the press date. They were replaced with new bond issues selected in accordance to the criteria above.[7] All of our empirical tests were run twice, once using the new set of matching bonds and again using the original set of matching bonds. In both cases, the magnitude of the bondholder's abnormal returns and the t-statistics are similar. All the results reported in this paper are generated with the new set of matching bonds.

By dating the month with the press date as month t=0, the first month after the press date as t=+1, etc., the monthly rates of return for the period -12 to +12 months over each pair of sample and matching bonds were computed as

$$R_t = \frac{(P_t + \frac{n}{12}C) - (P_{t-1} + \frac{n-1}{12}C)}{P_{t-1} + \frac{n-1}{12}C} \qquad (1)$$

where P_t = the market price of the bond at the end of month t.

C = the annual coupon payment per bond

$\frac{C}{12}$ = the coupon earned for holding the bond one month.

n = the number of months accrued toward the next coupon payment at the end of month t.

The return calculated in equation (1) takes into account the fact that when a bond is sold the buyer pays the seller both the current market price of the bond and the accrued interest.

The monthly rate of return for each matching bond was subtracted from the monthly rate of return for each corresponding sample bond. If a firm had several bonds outstanding, all of the return differences were averaged over each month for the firm. This was done so that multiple observations from some firms would not create interdependence in the sample. This left 50 observations; 28 from acquiring firms and 22 from acquired firms. The average of the firm differences was computed for each relative month t, from t=-12 to t=+12, by the following equation:

$$\bar{b}_t = \frac{1}{M} \sum_{i=1}^{M} (R_{it} - R^*_{it}) \qquad (2)$$

where $\bar{b}_t$ = the average difference (AD) of rates of return for relative month t.

R_{it} = the rate of return on firm i's sample bonds in relative month t.

R^*_{it} = the rate of return on firm i's matching bonds in relative month t.

M = the number of firms in the sample.

The measure $\bar{b}_t$ may be thought of as the average abnormal return to the bondholders of firms involved in a merger bid during month t.[8]

These average differences (AD) in rates of return are then summed over several months to compute the cumulative average differences (CAD) by

$$\bar{\bar{b}}_T = \sum_{k=-K}^{T} \bar{b}_k \qquad (3)$$

where $\bar{\bar{b}}_T$ is the cumulative average differences (CAD) of rates of return from relative month -K through relative month T. The CAD thus represents one measure of abnormal returns over time. Two different series of CAD's are computed in this paper. CAD-12 represents the CAD series cumulated from relative month -12 forward (i.e. K=-12), and CAD-2 represents the CAD series cumulated from relative month -2 forward (i.e. K=-2). The CAD-12 series was computed simply because the return data covers the period from t=-12 to +12 month. The CAD-2 series was computed because earlier work by Asquith (1979) and Dodd (1980) using stock prices and shareholders returns found that the capital market begins to react to merger bids approximately 2 months before the press date. This was interpreted as an indication that the information of the upcoming merger bid started to leak to the market t=-2. Thus the series CAD-2 should capture the entire market reaction to a merger bid without including any unrelated effects that may show up in the series CAD-12.

An additional measure of abnormal returns over time is also calculated. Merger bids, as mentioned above, are of varying duration. Thus, some merger bids are completed before others, and a CAD series may mix ongoing and completed bids. To eliminate this possibility an abnormal return over the

entire bidding period is calculated for each firm. For each pair of sample and matching bonds a bidding period return was calculated as follows:

$$R_B = \left[\prod_{t=0}^{E} (1 + R_t) \right] - 1 \qquad (4)$$

where R_t = the return for relative month t given by equation (1)

E = the number of months between the press date and the merger date

The bidding period return for each matching bond was subtracted from the bidding period return for each corresponding sample bond, and (after first averaging within each firm if the sample firm had multiple bonds) the differences were averaged across all firms by

$$\bar{b}_B = \frac{1}{M} \sum_{i=1}^{M} (R_{iB} - R^*_{iB}) \qquad (5)$$

where $\bar{b}_B$ = the average difference in rates of return for the entire bidding period from press month to merger month.

R_{iB} = the rate of return for firm i's bonds during the bidding period.

R^*_{iB} = the rate of return for firm i's matching bonds during the bidding period.

M = the number of firms in the sample.

Thus $\bar{b}_B$ serves as a measure of average abnormal returns for the entire merger period between the press date and the merger date without mixing complete and incomplete bids.

B.2. Methodology for Stockholder Returns

The methodology used here to calculate stockholder returns is essentially that used by Ibbotson (1975) and modified by Asquith (1980). This methodology is based on Black's (1972) capital asset pricing model, which states that the relationship between risk and expected return can be expressed as

$$E(\tilde{R}_i) = E(\tilde{\gamma}_o) + [E(\tilde{R}_m) - E(\tilde{\gamma}_o)]\beta_i \qquad (6)$$

where $E(\tilde{R}_i)$ = expected rate of return on asset i

$E(\tilde{R}_m)$ = expected rate of return on the market portfolio

$E(\tilde{\gamma}_o)$ = expected rate of return on the minimum variance portfolio whose return is uncorrelated with the market portfolio's return

$$\beta_i = \frac{\text{cov}(\tilde{R}_i, \tilde{R}_m)}{\sigma^2(\tilde{R}_m)}$$

If the joint distribution of security returns is multivariate normal and if $\tilde{\gamma}_o$ represents the minimum variance portfolio that is uncorrelated with the market return, $\tilde{R}_m$, the relationship between $\tilde{R}_i$, $\tilde{\gamma}_o$, and $\tilde{R}_m$ can be expressed as[9]

$$(\tilde{R}_{it} - \tilde{\gamma}_{ot}) = \alpha_i + \beta_i (\tilde{R}_{mt} - \tilde{\gamma}_{ot}) + \tilde{\eta}_{it} \qquad (7)$$

where $\alpha_i = E(\tilde{R}_i) - E(\tilde{\gamma}_o) - \beta_i [E(\tilde{R}_m) - E(\tilde{\gamma}_o)]$

$\tilde{\eta}_i$ = the stochastic disturbance term for asset i

The market equilibrium model described in equation (6) implies that in equilibrium $\alpha_i = 0.0$ for all i. Therefore estimates of α_i provide measures of abnormal performance and these estimates are used in this paper to measure abnormal stockholder returns.

In order to use equation (7) it is first necessary to obtain estimates for $\tilde{R}_{mt}$ and $\tilde{\gamma}_{ot}$. $\tilde{R}_{mt}$ estimates are the value weighted average return on all NYSE stocks, and $\tilde{\gamma}_{ot}$ estimates are calculated using the same procedure as the Fama-McBeth (1973) study.[10] The month of the press day is indexed as t=0 and the CRSP files provide $\tilde{R}_{it}$.

After finding estimates for $\tilde{R}_{mt}$ and $\tilde{\gamma}_{ot}$, a cross-sectional regression model is used to obtain estimates of α_i: $(R_{it} - \hat{\gamma}_{ot})$ is regressed against $(\hat{R}_{mt} - \hat{\gamma}_{ot})$ with the $\hat{R}_{mt}$ and $\hat{\gamma}_{ot}$ estimates being taken from the same calendar month as R_{it}. This one month model is of the form

$$(R_{it} - \hat{\gamma}_{ot}) = \hat{\alpha}_t + (\hat{R}_{mt} - \hat{\gamma}_{ot})\,\hat{\beta}_t + \hat{\eta}_{it} \qquad (8)$$

where

t = the relative month which is held constant across all firms

R_{it} = the return on security i during month t

$\hat{\alpha}_t$ = the regression constant which is the average return in excess of the returns implied by the equilibrium model in equation (6)

$\hat{\beta}_t$ = the regression coefficient for the independent variable $(\hat{R}_{mt} - \hat{\gamma}_{ot})$

$\hat{R}_{mt}, \hat{\gamma}_{ot}$ = the estimates of $\tilde{R}_{mt}$ and $\tilde{\gamma}_{ot}$ measured in the same calendar month as R_{it}

$\hat{\eta}_{it}$ = the disturbance term during relative month t.

T-statistics on $\hat{\alpha}$ are provided directly by the regression analysis.

The possibility exists that several firms may have press dates within the same calendar month. If each firm were treated as a separate observation, this may introduce possible interdependence into the

results. One such source of interdependence would be an industry effect. In order to eliminate this possibility, all stocks which have press days occurring during the same calendar month are formed into equally weighted portfolios and considered one security. The single month estimates of $\hat{\alpha}_t$ are now computed from equation (8) for each relative month.

While equation (8) can be used to measure abnormal stock performance over single month periods, it does not measure abnormal performance over holding periods of several months. An initial response to measuring abnormal performance over several months might be to aggregate the $(R_{it} - \hat{\gamma}_{ot})$ and $(\hat{R}_{mt} - \hat{\gamma}_{ot})$ for each security over the desired time period. This method, however, creates another possible source of interdependence between securities. When security returns are summed over several event time periods, they may overlap in calendar time periods.

Consider for example, two securities X and Y which are summed over a three month period prior to the press month. If t=0 in January 1964 for security X and t=0 in February 1964 for security Y, then aggregating the securities for three months will result in a two month overlap. The three month period for X covers October to December and the three month period for Y covers November to January.

The problem of overlapping calendar time periods is solved by forming a portfolio in each calendar time period that covers several relative time periods. That is, if we are interested in a three month abnormal return for the holding period from t=-2 to t=0, then in each calendar month we form the portfolio of all securities whose relative event time is t=-2, t=-1, or t=0 during that calendar month. This portfolio is held for one calendar month and during the next calendar month a similar portfolio is formed.

To clarify assume:

Security	Press Month
A	June
B	July
C	August
D	September
E	October

The portfolio we hold in June consists of securities A (t=0), B (t=-1), and C (t=-2). In July we will drop security A and add security D and the portfolio will be B (t=0), C (t=-1), and D (t=-2). Note that even though each portfolio is held for only one calendar month, it represents a three-month abnormal return and that each security is held for all three relative time periods t=-2, t=-1, t=0 by being in three consecutive portfolios. [See Ibbotson (1975) for a different explanation of this methodology.]

For each calendar month, a separate portfolio return can be computed by taking the equally weighted average return of all the individual securities in the portfolio during that month. Thus the portfolio rule, which measures performance over any given holding period, $n \leq t \leq r$, can be generated by regressing all non-empty portfolios in the following model:

$$(R_{p,n,r} - \hat{\gamma}_o) = \hat{\alpha}_{nr} + \hat{\beta}_{nr} (\hat{R}_m - \hat{\gamma}_o) + \hat{\eta}_{p,n,r} \qquad (9)$$

where p = portfolio of securities held during a calendar time period

n,r = the beginning and end of the relative time holding period, i.e. $n \leq t \leq r$.

$R_{p,n,r}$ = the calendar month return on the portfolio p consisting of securities with $n \leq t \leq r$. This return is calculated directly from the CRSP files.

$\hat{R}_m, \hat{\gamma}_o$ = the estimates of $\tilde{R}_m$ and $\tilde{\gamma}_o$ measured in the same calendar month as $R_{p,n,r}$

$\hat{\alpha}_{nr}$ = the regression constant which serves as a measure of abnormal performance for the holding period from n to r.

$\hat{\beta}_{nr}$ = the regression coefficient for the independent variable

$\hat{\eta}_{p,n,r}$ = the regression disturbance term for the pth portfolio

The regression analysis provides t-statistics for $\hat{\alpha}_{nr}$ directly.

Using equations (8) and (9) we calculate a series of single month abnormal returns and two series of cumulative portfolio abnormal returns beginning at t=-12 and t=-2 respectively. They end at t=+12 for acquiring firms and t=0 for acquired firms. The series ends earlier for acquired firms because although most firms continued to exist after the press month, the bidding period until the merger month varies widely and the number of securities in the series does not remain constant after t=0.

III. Results on Bond Returns

A. The Total Sample

Results are reported below both for the original sample of firms which covers the period 1960-1973, and for the expanded sample, which extends the period covered through 1978. As mentioned above, the firm sample was increased because results on the original sample were somewhat mixed regarding the size and significance of the bondholder's abnormal returns. Table 1 presents average differences (AD) and cumulative average differences (CAD) on the original sample of 37 firms for the period from 12 months before until 12 months after the press date. T-statistics for each month are also calculated and displayed.[11] Table 2 presents the comparable series and statistics for the expanded sample of 50 firms. As discussed earlier two different CAD measures are presented in the results. CAD-12 cumulates average differences for each month from month t=-12, while CAD-2 cumulates average differences from month t=-2.

Table 1

Table 2

Both Table 1 and Table 2 indicate that the entire sample of bonds has a positive average abnormal return during the press month t=0. In Table 1 the average difference is +.78% with a t-statistic of 1.34, and the CAD-12 and CAD-2 series reach levels of +1.41% and +1.27% respectively with t-values of 1.87 and 1.49. In Table 2 the average difference is +1.07% with a t-statistic of 1.66. Furthermore, Table 2 reports a CAD-12 of +1.97% with a t-statistic of 2.76 and a CAD-2 of +1.53% with a t-statistic of 1.95. Taken alone these results are significantly

different from that reported by Kim and McConnell (1977). In the merger month, Kim and McConnell report an AD of -.51% and a t-statistic of 0.13. At no time do their t-statistics for either the AD's or CAD's ever exceed $\pm$0.4. This difference in t-statistics is remarkable given that the sample bonds used in Table 1 and the methodology of computing returns is identical to that used by Kim and McConnell. Presumably our use of the press date, by eliminating the time lag between press month and merger month, significantly reduces at least one source of noise in the bond results.

In the months following the press date, the CAD's in Table 1 first diminish and then increase. During the period t=+10 months until t=+12 months both CAD-12 and CAD-2 are approximately +2.5% and both are significant at the 10% level. This pattern of abnormal returns is smoothed for the expanded sample of firms reported in Table 2. The two CAD series displayed there are not as dramatic either in absolute size or in statistical significance as the series reported in Table 1. This can also be seen in Figures 1 and 2 which plot the CAD-12 series for the original and expanded sample of firms. The CAD-2 series is not plotted but would be parallel to the CAD-12 series.

Figure 1

Figure 2

B. Acquiring vs. Acquired Firms

Certain effects, however, may be hidden when an entire sample is examined together. While both samples give some evidence of positive abnormal returns, it may be that only certain categories of bonds earn the

positive abnormal returns while the rest earn either zero or negative abnormal returns. For example, bonds issued by the bidding firm may react differently to the announcement of a merger bid than bonds issued by the target firm. In fact, previous studies using stockholder returns found that there were important differences between acquired and acquiring firms. Stockholders of acquired firms earned substantial positive abnormal returns while stockholders of acquiring firms neither gained nor lost.

There are other reasons to believe that the financial effects discussed above impact differently on the acquiring firms' and the acquired firms' bondholders. Since the acquiring firm typically initiates a merger, the "incentive effect" pointed out by Jensen and Meckling (1976) should apply mainly to the acquiring firms. That is, stockholders of firms which have bonds outstanding have the incentive to create wealth transfers from their bondholders to themselves by making risky acquisitions. The Higgins and Schall (1977) "diversification effect," however, would create the opposite wealth transfer; from stockholders to bondholders. Furthermore, Smith and Warner (1979) show that most bond covenants contain restrictions on mergers which protect the bondholders from the "incentive effect." Thus, any "incentive effect" should be cancelled by other effects, and we expect the bondholders of an acquiring firm to neither gain nor lose from a merger bid.

On the other hand, since acquired firms are typically the passive parties in a merger, the incentive effect should have little relevance for them. Only the diversification effect would exist, and consequently, we would expect bondholders of acquired firms to earn positive abnormal returns. The size of these abnormal returns provide a measure of the strength of the diversification effect. Because of these potential differences between acquiring and acquired firms, it is necessary to examine both classes of bonds separately.

B.1. Acquiring Firms

Tables 3 and 4 report the AD, CAD-12, and CAD-2 series for the original sample of 21 acquiring firms and for the expanded sample of 23 acquiring firms, respectively. The CAD series are also graphed in Figures 3 and 4. Table 3 shows that the average difference is +1.36% during the press month for the original sample of firms, and Table 4 displays an average difference of +1.08% during the press month for the expanded sample of firms. The t-statistics for the two AD's are 1.67 and 1.15. Both of these gains, however, are immediately negated during month t=+1. In Table 3 the AD at t=+1 is -1.67%, and in Table 4 it is -1.06%. This reversal is both puzzling and yet possibly illuminating. There is a methodological problem with using the matching bond technique for time periods as short as a single month. That problem is the non-trading of securities. Many of the bonds issued by both the sample and the matching firms do not trade every month. This means that changes in equilibrium bond prices are not necessarily reflected in the month they occur, and that considerable noise can be introduced into the AD series from both the sample and the matching bonds. Part of the function of the two CAD series is to eliminate some of this noise and to capture any significant systematic movement.

Table 3

Table 4

Figure 3

Figure 4

The only noticeable CAD's in Table 3 are the +1.77% CAD-12 at the press month and the CAD-12's during the period t=+9 to t=+11 months. The +1.77% CAD-12 at the press month drops immediately to .1% in the following month, however, and actually becomes negative by month t=+4. Furthermore, none of the CAD-2's in Table 3 (which, as we discussed earlier, may have less noise than the CAD-12 series) are statistically different from zero. This suggests that there are no net wealth effects for the sample of firms in Table 3. The results in Table 4 are similar; the CAD-12 series is large and significant during the period t=-2 months until the press month but then declining sharply. The CAD-2 series is also not significant for any month shown. These results in Tables 3 and 4, while positive at the press month, are consistent with the hypothesis that the acquiring firms' bondholders neither gain nor lose significantly from a merger bid. There is no evidence, therefore, to suggest that either the incentive effect or the diversification effect is dominant for the acquiring firms' bondholders.

B.2. Acquired Firms

Tables 5 and 6 give the results for the acquired firms' bonds. Unlike the acquiring firms, expanding the sample of acquired firms makes the results different from the original sample. In Table 5 both CAD series generally increase over the period -2 months until +10 months, reaching an average abnormal return of 4.2% in month t=+10 with an average t-statistic of +1.9. This increase can be seen in Figure 5. The CAD-2 series exhibits stronger results than the CAD-12 series (i.e. larger CAD's and higher t-statistics) and at t=+10 months the CAD-2 is 4.35% and the t-statistic is 2.25.

Table 5

Figure 5

The fact that the CAD's increase gradually over time rather than only at the press date does not by itself imply the informational inefficiency of bond markets. The phenomenon of slowly adjusting CAD's may simply reflect the non-trading problem discussed earlier and/or the resolution of uncertainty about a merger bid. At the time of the press date there is still uncertainty about the actual consummation of the merger. This uncertainty is only gradually reduced over time, and is not completely eliminated until the merger date.[12]

The results in Table 6 seriously limit the conclusions that can be drawn from Table 5. Although the CAD-12 and CAD-2 series are positive throughout t=-2 months to t=+12 months, they are small and the t-statistics are no longer significant. Comparing Figure 5 with Figure 6 clearly shows the difference in the CAD series for the two samples. While it is clear that the acquired firms' bondholders do not suffer abnormal losses due to a merger, it is also true that we cannot claim that they receive significant abnormal gains.

Table 6

Figure 6

The difference between Tables 5 and 6 is due to the six target firms which were added to the sample when the sample period was extended to December 31, 1978. The CAD series for these additional target firms behave differently from the CAD series reported in Table 5. The AD for the press month is a positive 3.34% with a t-statistic of +1.69. This is considerably larger than the +.01% AD at time t=0 for the original sample of firms.

After the press month, however, the AD's for the 6 new firms are negative in every month but two. The CAD-12 at time t=+10 months is -6.44% and the t-statistic is -2.92. The CAD-2 at t=+10 is also large and negative, -5.87%, but not significant at the 10% level with a t-statistic of -1.71. Although it is possible our initial results are specific to the period 1960 to 1973 and a real change in the pattern of bondholder returns has occurred, it is difficult to conclude that based on a sample of only six firms. Clearly, a more accurate test requires additional firms and a longer time period than is now available. Nevertheless, we divided the entire sample period into several subperiods to see if there were any discernible changes in the pattern of bondholder returns. With the exception of what is reported above, we did not observe any sharp changes in bondholder returns.

Several other tests were also run in addition to those reported in Tables 1 through 6. Abnormal returns for the entire bidding period were calculated using equation (4) and statistical tests were performed on various subsets of our sample to determine if the bidding period returns were significantly different than zero. The subsets chosen included the original sample of firms, the additional sample of firms, the acquired firms both old and new, and the acquiring firms both old and new. The hypothesis that the mean bidding period return, R_B, was equal to zero could not be rejected for any subset. Other hypotheses tested with similar results (i.e. they could not be rejected with a 10% level of confidence) include the hypothesis that the mean returns across subsets of firms are equal, and the hypothesis that the percentage of firms in each subset displaying positive bidding period returns is equal to 50%.

To summarize, the results indicate that the bondholders of the merging firms neither gain nor lose significantly from a merger. This is true both for acquiring and acquired firms. The CAD's for the acquired firms are larger on average than those for the acquiring firms but not substantially so. Finally, the CAD-2 series is large and significant around time t=+10 for firms that were acquired in the period 1960-1973.

The implications of these results are not unambiguous. There is some indication that both the "incentive effect" and the "diversification effect" exist and that they interact as postulated earlier. The positive CAD's from t=-2 months to t=+12 months in Tables 1 and 2, although not statistically significant, suggest the presence of a diversification effect. Furthermore for the period 1960-1973, the CAD series are large and significant for the acquired firms' bondholders but small and insignificant for the acquiring firms' bondholders. These results are consistent with the occurrence of an "incentive effect" for the bidding firms' stockholders and a "diversificant effect" for corporate bonds in general.

However, the results from the extended sample period are different and cast doubt on the validity of the claims made above. The only conclusion that can be drawn about the enlarged sample of firms is that if the "incentive effect" and the "diversification effect" exist, they cancel each other and the net effect cannot be separated using currently available data and methodology. This is true for both acquiring and acquired firms.

IV. Results on Stock Returns

Since this study restricts the firms used in the sample more severely than any previous merger study of stockholders returns, it is possible that our sample is unique. One way to test this possibility is to see if the stockholders in our sample experience different returns from those in the earlier studies. This was done for the original and for the expanded sample of firms by calculating single month abnormal returns with equation (8) and cumulative abnormal returns with equation (9). The results on both samples are similar in size and significance. Tables 7 and 8 report the monthly and the cumulative abnormal returns for the expanded sample of acquiring and acquired firms.

Table 7

Table 8

Table 7 shows that the acquiring firms' stocks display no significant abnormal returns throughout the entire period from -12 to +12 months. On the other hand, Table 8 demonstrates that the acquired firms' stockholders experience significant positive abnormal returns at the press month. These results are consistent with previous findings by Mandelker (1974), Langetieg (1979), Asquith (1979), and Dodd (1980). This has two major implications: first, the restrictions which were used to eliminate contaminating influences such as operating synergies and partial, minor, and multiple mergers do not introduce any new influences into the stockholder returns. Second and more importantly, since our sample was carefully drawn to include only conglomerate mergers, operating synergies do not seem to explain the entire positive

abnormal returns which the acquired firms' stockholders receive from merger bids. A large percentage of the mergers used in previous studies by Mandelker, Langetieg, Asquith, and Dodd are non-conglomerate. If most conglomerate mergers do not result in real synergies (see Footnote 2), the similarity of our results in both size and significance to those previous studies suggests that operating synergies are not the only cause of stockholders' gains.

V. Commentary and Conclusions

In this paper we examined the effect of merger announcements on both the stockholders and the bondholders of merging firms. We restricted our investigation to those mergers that were classified as "conglomerate" by the Federal Trade Commission and to those firms which did not engage in multiple mergers. These requirements were imposed in order to isolate the financial effects of merger from any real effects associated with operating synergies. Even with this restriction, we found that the securityholders of the merging firms gained as a whole. The stockholders of the acquired firms earned statistically significant positive abnormal returns after the announcement of a merger, while the stockholders of the acquiring firms and the bondholders of both acquiring and acquired firms do not on average gain or lose from the merger. This means that overall, conglomerate mergers increase firm value as measured by the security markets.

A closer examination of the securityholders' returns provides several implications. First, bondholders on average do not earn positive or negative abnormal returns. This indicates that if wealth transfers do occur, they are more than offset by other effects. The only claimholders to show abnormal gains were the acquired firm's stockholders and their gains do not come at the expense of other securityholders. Since there are no net wealth transfers, the gains exhibited must come from some favorable effect which mergers have on firm valuation.

Our results suggest that, in contrast to the explanations offered by previous authors, the source of these reported gains from mergers are not entirely due to operating synergies. If operating synergy was an important factor in most mergers, the stockholder returns for our sample should be different from those of other samples which include non-conglomerate mergers.

In fact, the stockholder returns for our sample are similar to those found by previous authors. The acquired firms' stockholders gain -- and the size and significance of the gains are similar to those of previous studies, while the acquiring firms' stockholders neither gain nor lose. The robustness of this result across samples requires an additional explanation for merger besides operating synergy.

The implications from the bondholder returns are not as unambiguous. The original sample of firms for the period 1960 to 1973 seems to indicate that the "diversification effect" is present for the acquired firms and that the "incentive effect" and the "diversification effect" counteract for acquiring firms. However, when the sample period is extended to 1978, the addition of new firms negate these results. For the enlarged sample, no class of bondholders earned significant positive abnormal returns. This may be the result of a real change in the pattern of bondholder returns between the merger waves of the 1960's and the 1970's. Given the small addition to the sample size, however, we do not feel comfortable in concluding that. A more plausible explanation is that the "diversification effect" is cancelled by other effects, and the net effect is too small to measure properly. A negation of the diversification effect could occur if a merger increases the risk of the bondholders either by asset substitution [e.g., Jensen and Meckling (1976)] or by an increase in financial leverage. This second possibility was raised by Kim and McConnell (1977) and their results do indicate that mergers entail some increase in leverage.

Finally, it is somewhat surprising that the expanded sample shows no evidence of a carry-over effect to the acquired firms' bondholders. That is, in spite of the fact that there were substantial increases in the acquired firms' share prices, it did not carry over to the same firms' bond prices. Even with no diversification effect, in the absence of an "incentive effect" we would expect that an increase in a firm's equity base, which is brought about by an increase in the share price, would lead to an increase in the market value of the firm's outstanding debt. Since we do not observe such a carry-over effect, this may indicate that there is an "incentive effect" even for the acquired firms: The acquired firms' bonds become the acquiring firms' stockholders' responsibility after the merger, and hence these stockholders clearly have an incentive to prevent the bondholders from reaping abnormal gains. In addition, if the means of acquisition includes an exchange of common shares or securities convertible into common stocks, then the acquired firms' stockholders have equity claims in the post-merger firm. Consequently, the acquired firms' stockholders also have an incentive to prevent the bondholders from reaping abnormal gains. These incentives may lead the shareholders to

search for firms with greater risk to create a Jensen-Meckling type asset substitution effect and/or to initiate an increase in financial leverage around the merger date.

These results, while providing some insights into the issues that were discussed at the outset of the paper, raise additional questions. In particular, they raise the questions of where the positive returns for acquired firms' stockholders come from and why the acquiring firms initiate mergers if both their stockholders and bondholders do not gain? Possible answers may lie with another group of claimholders; specifically the

managers. Perhaps the acquiring firms' managers initiate mergers for their own gains and the gains come from the managers of the target firms. Conglomerate mergers may improve the efficiency of the acquired firms' management either in the form of higher managerial productivity or lower compensation. The acquiring firms' managers may use this improvement to reward themselves and to entice the acquired firms' stockholders to sell. The acquiring firms' stockholders should not object to this strategy as long as they are not worse-off as the result of merger. To investigate these possibilities, however, require a comprehensive analysis of the effect of mergers on managerial compensation. This is beyond the scope of this paper. However, we are currently investigating it for a forthcoming paper.

FOOTNOTES

1. In a perfect capital market, diversification of risk at the firm level will have no effect since investors can engage in "homemade diversification."

2. There are several empirical studies which address this question of whether conglomerate mergers combine real activities. The most direct evidence is provided by the Federal Trade Commission Survey (1972) which looks at post-merger changes in both administrative functions and management personnel. Their conclusion was that most conglomerate acquirers used a multidivisional structure and "made only minor changes in the operations of acquired companies, which had no discernible effect." [P. 85] Lynch (1971) reached the same conclusion and stated that there was "little integration of the operations of acquired subsidiaries" and that what integration took place "typically [consisted of] only some staff functions." [P. 282] Gort (1969) in a more indirect approach finds little evidence of operating efficiencies in conglomerate mergers.

3. Myers (1977) also makes a similar point and examines its impact on corporate debt policy.

4. See Asquith (1980) for an in-depth discussion on this point.

5. See Kim and McConnell (1977) for a more detailed description of the selection technique.

6. A merger is classified as major if the book value of the assets for the smaller firm is greater than 10% of the book value of the assets fo. the larger firm. Ideally we would like to exclude all bonds which are involved in any merger during the 48-month interval. Such a restriction, however, in addition to the above four criteria, would make it virtually impossible to obtain a sample of publicly traded matching bonds.

7. Glenmore Distilleries (BBB, 4%, 1972, matched to Consolidated Cigar Corp.) was replaced with Lockheed Aircraft (BBB, 4.5%, 1976), and Winn-Dixie Stores (A, 3.75%, 1976, matched to Lorillard Co.) was replaced with Celanese Corp. of America (A, 3.5%, 1976). Both Lockheed's and Celanese's bonds were listed on NYSE and traded regularly. Lockheed's bond issue was also matched with Brown Co. during a different time period; for Brown Co. the time period was December 1961 to December 1963, while for Consolidated Cigar it was August 1966 to August 1968.

8. Since bond ratings sometimes change over time, the switch in events from the merger date to the press date raises the possibility that some of the matching bonds may have different ratings than the sample bonds. All bonds' ratings were therefore checked for the 12 months before the press date. The ratings matched exactly.

9. See Fama (1976).

10. This procedure forms twenty equal-size portfolios on the basis of ranked betas of individual securities, β_i. β_i's are estimated for each security i by

$$\hat{\beta}_i = \frac{\text{cov}(\tilde{R}_i, \tilde{R}_m)}{\sigma^2(\tilde{R}_m)}$$

where the NYSE equal-weighted index is used for $\tilde{R}_m$. Portfolio formation periods are all seven years in length except for the first one from 1926-1929. After forming portfolios the next five years of data is used to recompute the betas for individual securities. These individual betas are averaged within portfolios to obtain portfolio betas. Data from the subsequent four years is then used to compute the monthly returns for each portfolio R_{pt}, and to update monthly the portfolio betas, β_{pt}. Finally, for each month t of the four-year period, the following cross sectional regression is run to obtain the $\hat{\gamma}_{ot}$

$$R_{pt} = \hat{\gamma}_{ot} + \hat{\gamma}_{it} \hat{\beta}_{p,t-1} + \hat{R}_{pt} \quad p = 1,\ldots,20.$$

This process, seven years to form portfolios, five years to compute initial values of the portfolio betas, and four years to compute the monthly γ_{ot}, is repeated until all time periods are covered.

11. The t-statistics are computed by the standard procedure for paired samples. For example, to compute the t-statistic for CAD-2, CAD-2 at month T was divided by the sample standard deviation of the paired difference variable as follows:

Let $d_{iT} = \sum_{k=-2}^{T} R_{ik} - \sum_{k=-2}^{T} R^*_{ik}$ be the paired difference variable.

Then, $t_T = \bar{d}_T / s_{\bar{d}_T}$,

where $\bar{d}_T = \frac{1}{M} \sum_{i=1}^{M} \left[\sum_{k=-2}^{T} R_{ik} - \sum_{k=-2}^{T} R^*_{ik} \right]$

$$= \sum_{k=-2}^{T} \frac{1}{M} \sum_{i=1}^{M} (R_{ik} - R^*_{ik})$$

$$= \sum_{k=-2}^{T} \bar{b}_k$$

$$= \bar{\bar{b}}_T, \text{ which is the CAD-2 at month T [see Eq. (3)].}$$

$$s_{\bar{d}_T} = \sqrt{\frac{1}{M}\left(s_1^2 + s_2^2 - \frac{2\sum_{i=1}^{M}\left(\sum_{k=-2}^{T} R_{ik}\right)\left(\sum_{k=-2}^{T} R^*_{ik}\right)}{M-1}\right)}$$

$$s_1^2 = \text{sample variance of } \sum_{k=-2}^{T} R_{ik}$$

$$s_2^2 = \text{sample variance of } \sum_{k=-2}^{T} R^*_{ik}$$

12. Asquith (1980) showed this to be true for the stockholder returns.

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TABLE 1

BONDHOLDER ABNORMAL RETURNS AS MEASURED BY AVERAGE DIFFERENCES AND CUMULATIVE AVERAGE DIFFERENCES FOR THE ORIGINAL SAMPLE OF 37 FIRMS FROM MONTH -12 TO MONTH +12

Relative Month	Average Difference	T-Statistic	Cumulative Average Difference-12	T-Statistic	Cumulative Average Difference-2	T-Statistic
-12	-.0023	-0.64	-.0023	-0.64		
-11	-.0022	-0.49	-.0045	-1.29		
-10	.0068	1.99	.0023	0.63		
-9	-.0010	-0.21	.0013	0.22		
-8	-.0059	-1.73	-.0047	-0.93		
-7	.0055	1.21	.0008	0.13		
-6	.0002	0.05	.0010	0.14		
-5	-.0018	-0.29	-.0007	-0.12		
-4	.0045	1.02	.0038	0.57		
-3	-.0024	-0.48	.0013	0.20		
-2	.0034	0.73	.0047	0.80	.0034	0.73
-1	.0015	0.50	.0063	1.07	.0049	1.03
0	.0078	1.34	.0141	1.87	.0127	1.49
+1	-.0063	-1.14	.0078	0.82	.0064	0.75
+2	-.0027	-0.72	.0050	0.48	.0037	0.40
+3	.0005	0.08	.0055	0.54	.0042	0.51
+4	-.0044	-0.76	.0011	0.10	-.0003	-0.03
+5	.0081	1.43	.0092	0.86	.0078	0.78
+6	.0060	1.13	.0152	1.45	.0139	1.54
+7	-.0040	-0.62	.0112	0.91	.0099	0.88
+8	.0014	0.24	.0126	1.07	.0113	1.07
+9	.0051	0.88	.0177	1.53	.0164	1.65
+10	.0106	2.05	.0284	2.28	.0270	2.35
+11	-.0029	-0.35	.0255	2.18	.0242	2.23
+12	-.0044	-0.78	.0211	1.66	.0197	1.62

TABLE 2

BONDHOLDER ABNORMAL RETURNS AS MEASURED BY AVERAGE DIFFERENCES AND CUMULATIVE AVERAGE DIFFERENCES FOR THE EXPANDED SAMPLE OF 50 FIRMS FROM MONTH -12 TO MONTH +12

Relative Month	Average Difference	T-Statistic	Cumulative Average Difference-12	T-Statistic	Cumulative Average Difference-2	T-Statistic
-12	-.0040	-0.75	-.0040	-0.75		
-11	.0032	0.63	-.0008	-0.15		
-10	.0046	0.98	.0037	0.74		
-9	.0006	0.11	.0043	0.73		
-8	-.0013	-0.39	.0030	0.49		
-7	.0022	0.57	.0051	0.74		
-6	.0003	0.07	.0054	0.74		
-5	-.0040	-0.66	.0015	0.23		
-4	.0031	0.76	.0046	0.73		
-3	-.0001	-0.03	.0044	0.70		
-2	.0058	1.32	.0103	1.71	.0058	1.32
-1	-.0013	-0.44	.0090	1.49	.0046	1.01
Press Month	.0107	1.66	.0197	2.76	.0153	1.95
+1	-.0052	-0.85	.0145	1.67	.0101	1.37
+2	-.0036	-1.10	.0109	1.16	.0065	0.83
+3	.0022	0.40	.0131	1.13	.0087	1.09
+4	-.0098	-1.55	.0034	0.34	-.0010	-0.13
+5	.0069	1.28	.0103	1.02	.0059	0.68
+6	.0041	0.76	.0144	1.46	.0100	1.23
+7	-.0058	-1.00	.0086	0.75	.0042	0.41
+8	.0021	0.41	.0108	1.03	.0064	0.70
+9	.0011	0.22	.0119	1.12	.0075	0.82
+10	.0040	0.67	.0159	1.30	.0115	1.01
+11	.0028	0.38	.0187	1.67	.0143	1.41
+12	-.0058	-1.12	.0129	1.10	.0085	0.76

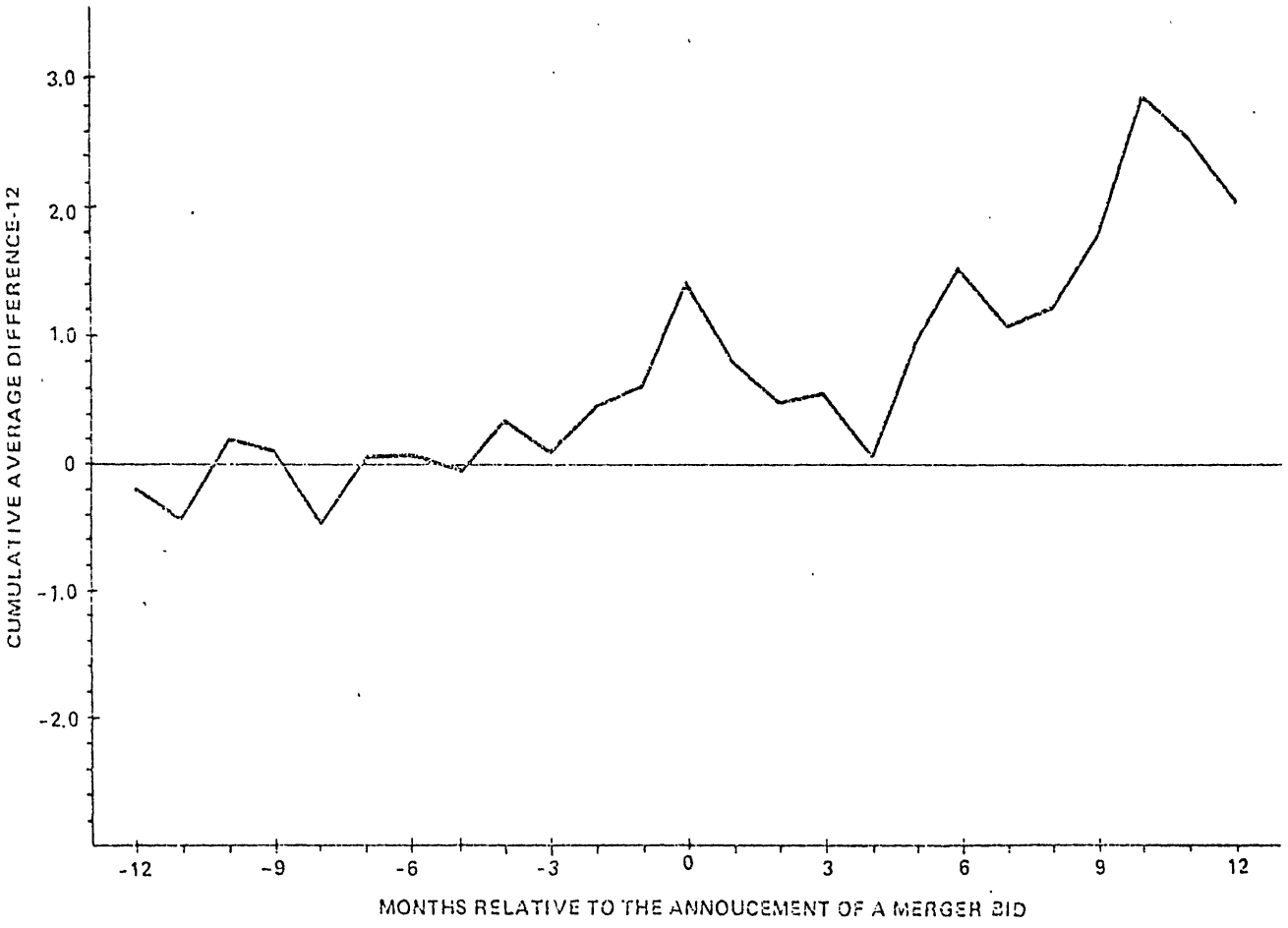

FIG. 1. CUMULATIVE AVERAGE DIFFERENCES FROM MONTH -12 FOR THE ORIGINAL SAMPLE OF 37 FIRMS

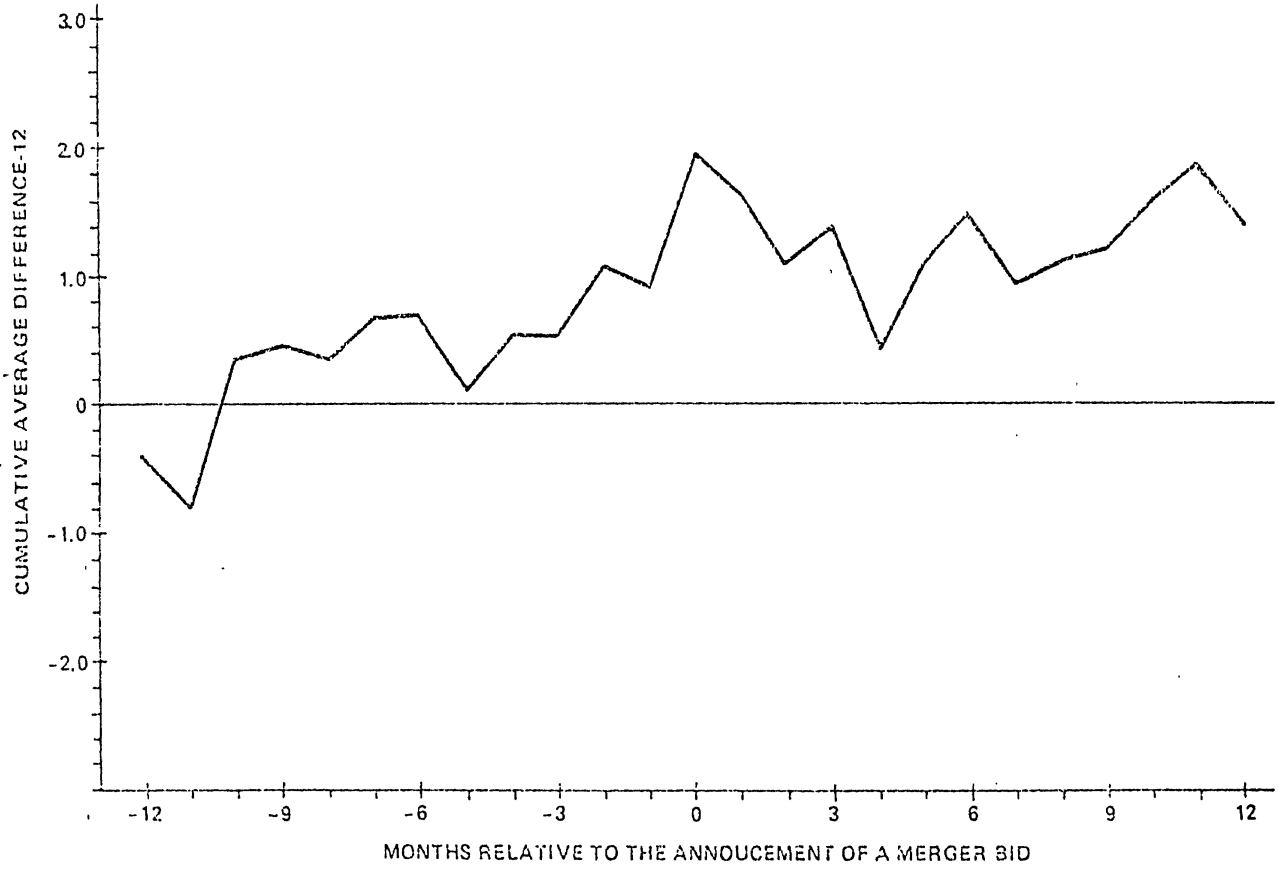

FIG. 2. CUMULATIVE AVERAGE DIFFERENCES FROM MONTH -12
FOR THE EXPANDED SAMPLE OF 50 FIRMS

TABLE 3

BONDHOLDER ABNORMAL RETURNS AS MEASURED BY AVERAGE DIFFERENCES AND CUMULATIVE AVERAGE DIFFERENCES FOR THE ORIGINAL SAMPLE OF 21 ACQUIRING FIRMS FROM MONTH -12 TO MONTH +12

Relative Month	Average Difference	T-Statistic	Cumulative Average Difference-12	T-Statistic	Cumulative Average Difference-2	T-Statistic
-12	-.0010	-0.20	-.0010	-0.20		
-11	-.0055	-1.05	-.0065	-1.61		
-10	.0067	1.79	.0002	0.05		
-9	.0058	1.27	.0061	0.98		
-8	-.0090	-1.95	-.0030	-0.51		
-7	.0067	1.13	.0037	0.47		
-6	-.0098	-2.03	-.0061	-0.58		
-5	.0071	0.72	.0010	0.12		
-4	.0054	1.12	.0064	0.75		
-3	-.0018	-0.27	.0046	0.49		
-2	.0013	0.20	.0059	0.90	.0013	0.20
-1	-.0018	-0.53	.0041	0.72	-.0004	-0.07
0	.0136	1.67	.0177	2.32	.0131	0.96
+1	-.0167	-2.39	.0010	0.15	-.0035	-0.31
+2	.0001	0.01	.0011	0.14	-.0035	-0.29
+3	.0019	0.34	.0030	0.37	-.0016	-0.18
+4	-.0056	-1.18	-.0027	-0.31	-.0072	-0.69
+5	.0114	1.37	.0088	1.03	.0042	0.31
+6	.0007	0.10	.0095	1.32	.0049	0.48
+7	-.0052	-0.53	.0043	0.35	-.0003	-0.02
+8	-.0029	-0.37	.0014	0.15	-.0032	-0.24
+9	.0129	1.45	.0143	1.72	.0097	0.88
+10	.0049	0.63	.0192	1.85	.0146	1.06
+11	-.0019	-0.15	.0173	1.85	.0127	0.95
+12	-.0050	-0.57	.0123	1.01	.0077	0.48

TABLE 4

BONDHOLDER ABNORMAL RETURNS AS MEASURED BY AVERAGE DIFFERENCES AND CUMULATIVE AVERAGE DIFFERENCES FOR THE EXPANDED SAMPLE OF 28 ACQUIRING FIRMS FROM MONTH -12 TO MONTH +12

Relative Month	Average Difference	T-Statistic	Cumulative Average Difference-12	T-Statistic	Cumulative Average Difference-2	T-Statisti
-12	-.0036	-0.41	-.0036	-0.41		
-11	.0011	0.17	-.0025	-0.29		
-10	.0108	2.10	.0083	1.21		
-9	-.0002	-0.04	.0081	1.28		
-8	-.0012	-0.24	.0069	0.88		
-7	.0036	0.61	.0105	1.05		
-6	-.0090	-1.71	.0015	0.15		
-5	.0052	0.59	.0067	0.72		
-4	.0054	1.26	.0121	1.37		
-3	-.0024	-0.40	.0097	1.08		
-2	.0074	1.21	.0170	2.52	.0074	1.21
-1	-.0029	-0.79	.0141	1.99	.0044	0.71
Press Month	.0108	1.15	.0250	2.95	.0153	1.20
+1	-.0106	-1.21	.0144	1.72	.0047	0.45
+2	-.0020	-0.51	.0124	1.45	.0027	0.25
+3	.0080	1.41	.0203	1.81	.0107	0.99
+4	-.0157	-1.95	.0047	0.52	-.0050	-0.55
+5	.0127	1.56	.0173	1.71	.0077	0.63
+6	.0002	0.03	.0175	1.95	.0079	0.83
+7	-.0053	-0.61	.0123	0.96	.0026	0.19
+8	-.0051	0.68	.0071	0.71	-.0025	-0.23
+9	.0096	1.15	.0167	1.75	.0070	0.71
+10	.0016	0.18	.0183	1.51	.0086	0.66
+11	.0001	0.01	.0185	1.53	.0088	0.66
+12	-.0072	-0.90	.0113	0.87	.0016	0.11

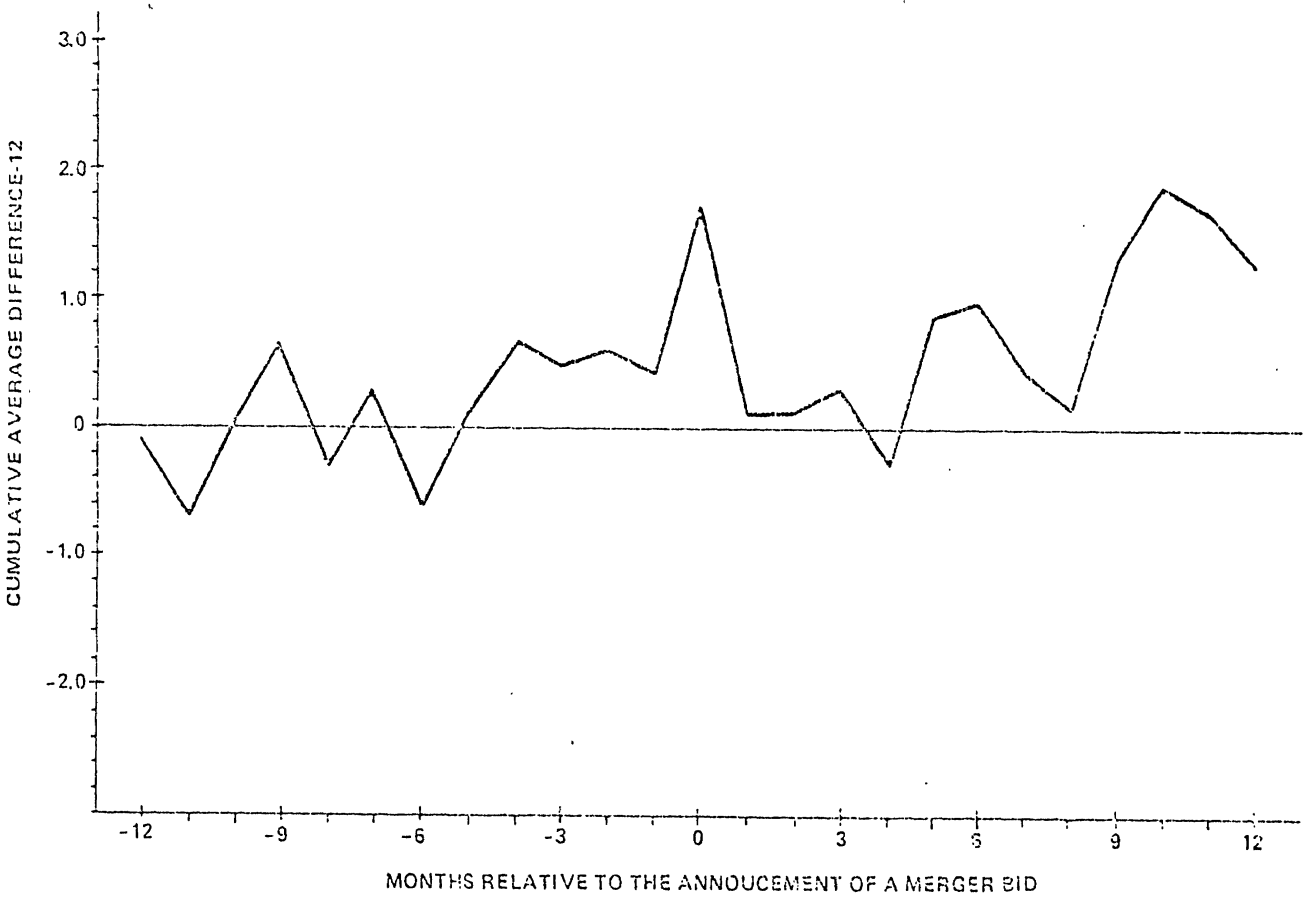

FIG. 3. CUMULATIVE AVERAGE DIFFERENCES FROM MONTH -12 FOR THE ORIGINAL SAMPLE OF 21 ACQUIRING FIRMS

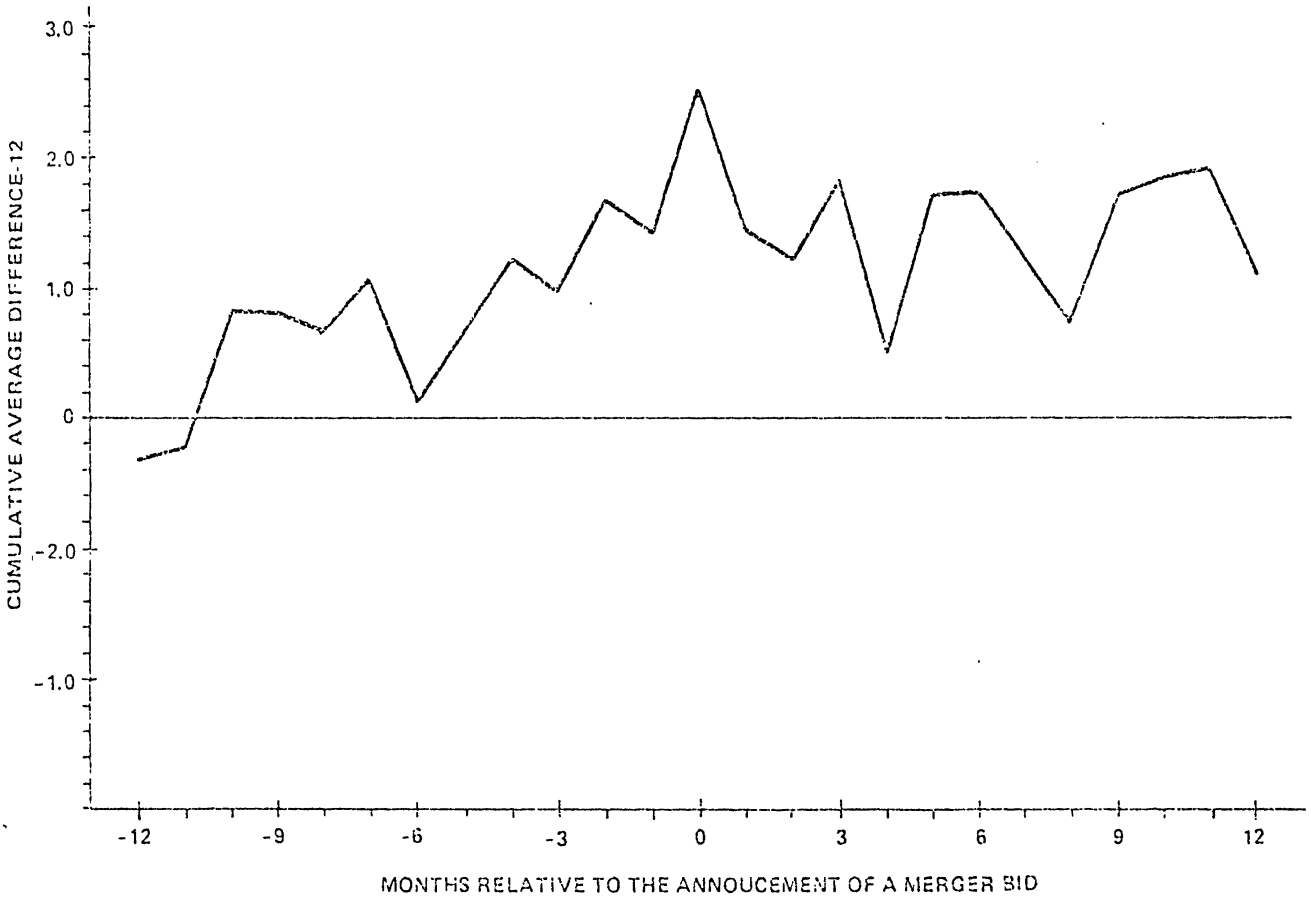

FIG. 4. CUMULATIVE AVERAGE DIFFERENCES FROM MONTH -12 FOR THE EXPANDED SAMPLE OF 28 ACQUIRING FIRMS

TABLE 5

BONDHOLDER ABNORMAL RETURNS AS MEASURED BY AVERAGE DIFFERENCES AND CUMULATIVE AVERAGE DIFFERENCES FOR THE ORIGINAL SAMPLE OF 16 ACQUIRED FIRMS FROM MONTH -12 TO MONTH +12

Relative Month	Average Difference	T-Statistic	Cumulative Average Difference-12	T-Statistic	Cumulative Average Difference-2	T-Statistic
-12	-.0040	-0.82	-.0040	-0.82		
-11	.0021	0.27	-.0019	-0.31		
-10	.0070	1.09	.0051	0.77		
-9	-.0102	-1.07	-.0051	-0.49		
-8	-.0018	-0.36	-.0070	-0.77		
-7	.0039	0.54	-.0031	-0.33		
-6	.0136	1.80	.0105	0.96		
-5	-.0136	-2.52	-.0031	-0.33		
-4	.0033	0.40	.0002	0.02		
-3	-.0032	-0.42	-.0029	-0.31		
-2	.0062	0.93	.0032	0.29	.0062	0.93
-1	.0059	1.04	.0092	0.80	.0121	1.79
0	.0001	0.01	.0092	0.64	.0122	1.45
+1	.0075	0.92	.0167	0.83	.0197	1.59
+2	-.0064	-0.93	.0103	0.46	.0133	0.92
+3	-.0014	-0.11	.0089	0.41	.0119	0.79
+4	-.0029	-0.23	.0060	0.25	.0090	0.55
+5	.0037	0.51	.0097	0.43	.0127	0.85
+6	.0131	1.54	.0229	1.00	.0258	1.62
+7	-.0024	-0.32	.0205	0.85	.0235	1.47
+8	.0071	0.87	.0276	1.13	.0305	1.84
+9	-.0053	-0.92	.0223	0.89	.0252	1.40
+10	.0183	3.05	.0406	1.58	.0435	2.25
+11	-.0041	-0.46	.0364	1.48	.0394	2.24
+12	-.0037	-0.54	.0328	1.31	.0357	1.91

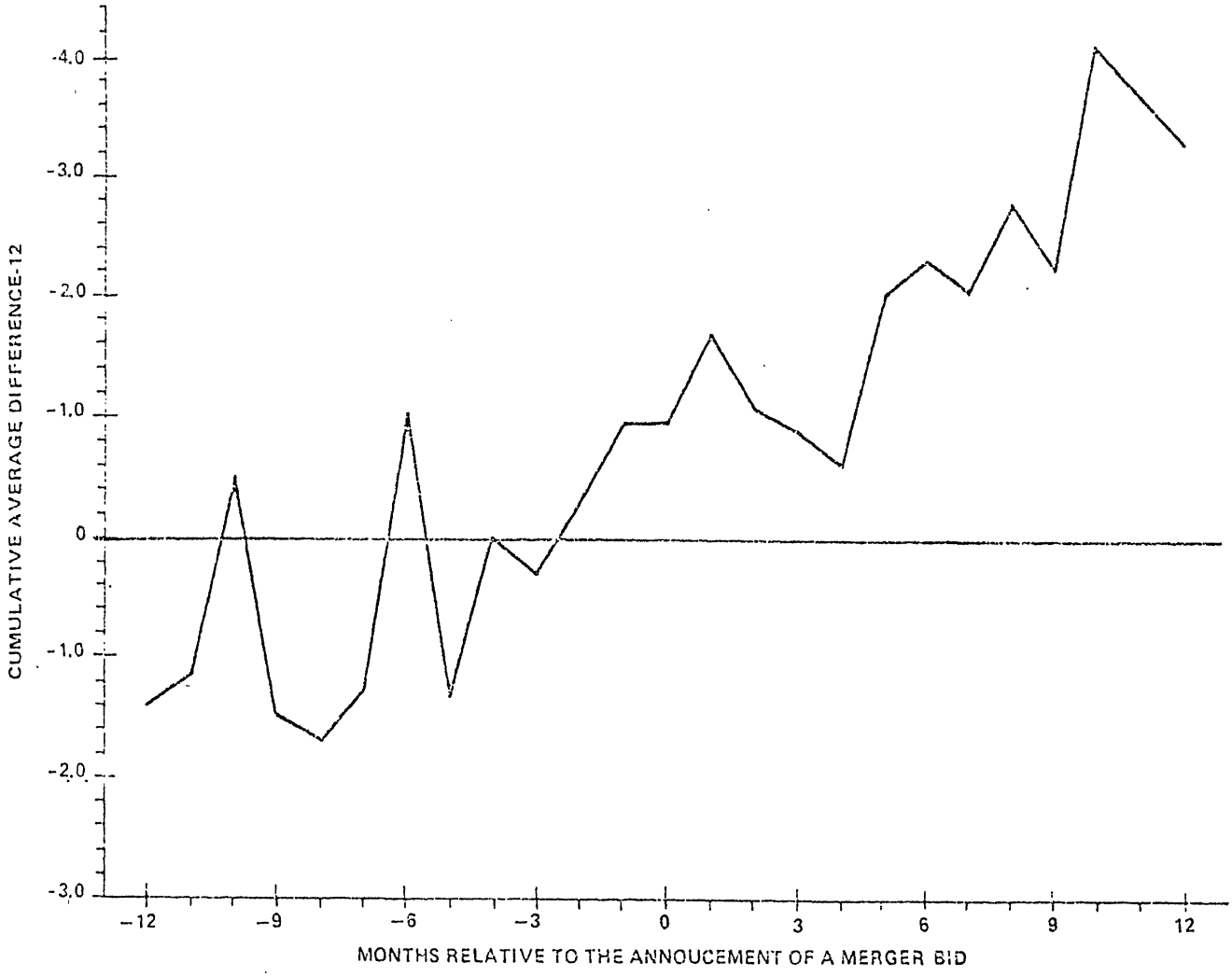

FIG. 5. CUMULATIVE AVERAGE DIFFERENCES FROM MONTH -12 FOR THE ORIGINAL SAMPLE OF 16 ACQUIRED FIRMS

TABLE 6

BONDHOLDER ABNORMAL RETURNS AS MEASURED BY AVERAGE DIFFERENCES AND CUMULATIVE AVERAGE DIFFERENCES FOR THE EXPANDED SAMPLE OF 22 ACQUIRED FIRMS FROM MONTH -12 TO MONTH +12

Relative Month	Average Difference	T-Statistic	Cumulative Average Difference-12	T-Statistic	Cumulative Average Difference-2	T-Statisti
-12	-.0046	-0.86	-.0046	-0.86		
-11	.0059	0.73	.0013	0.20		
-10	-.0034	-0.42	-.0022	-0.29		
-9	.0016	0.17	-.0006	-0.05		
-8	-.0015	-0.33	-.0021	-0.22		
-7	.0004	0.09	-.0016	-0.17		
-6	.0121	2.22	.0105	0.96		
-5	-.0157	-2.19	-.0052	-0.67		
-4	.0002	0.03	-.0050	-0.58		
-3	.0027	0.43	-.0023	-0.26		
-2	.0039	0.60	.0016	0.16	.0039	0.60
-1	.0009	0.20	.0025	0.24	.0048	0.71
Press Month	.0105	1.23	.0131	1.06	.0153	1.96
+1	.0016	0.18	.0146	0.87	.0169	1.65
+2	-.0055	-1.02	.0091	0.49	.0114	0.98
+3	-.0051	-0.57	.0040	0.23	.0062	0.51
+4	-.0022	-0.22	.0017	0.09	.0040	0.29
+5	-.0003	-0.05	.0014	0.07	.0037	0.29
+6	.0090	0.96	.0104	0.53	.0127	0.89
+7	-.0064	-0.87	.0040	0.19	.0063	0.40
+8	.0114	1.74	.0154	0.76	.0177	1.18
+9	-.0096	-1.93	.0058	0.28	.0081	0.48
+10	.0071	0.92	.0129	0.55	.0152	0.75
+11	.0062	0.65	.0191	0.92	.0213	1.34
+12	-.0040	-0.66	.0151	0.70	.0173	0.98

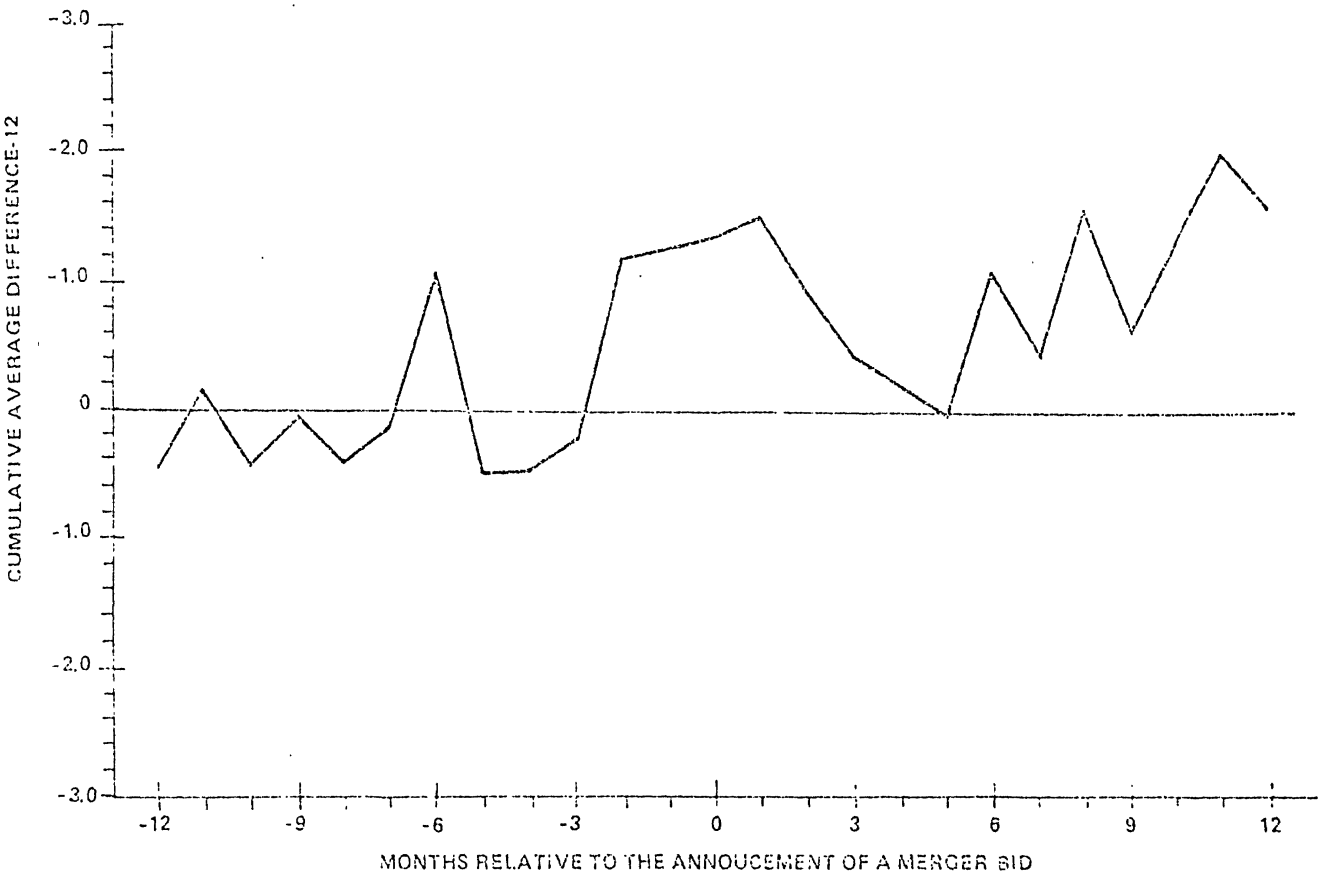

FIG. 6. CUMULATIVE AVERAGE DIFFERENCES FROM MONTH -12 FOR THE EXPANDED SAMPLE OF 22 ACQUIRED FIRMS

TABLE 7

STOCKHOLDER ABNORMAL RETURNS AND CUMULATIVE PORTFOLIO ABNORMAL RETURNS FOR THE EXPANDED SAMPLE OF 27 ACQUIRING FIRMS

Relative Month	Abnormal Return	T-Statistic	Portfolio Abnormal Return from t=-12	T-Statistic	Portfolio Abnormal Return from t=-2	T-Statisti
-12	-.0024	-0.17	-.0024	-0.17		
-11	-.0134	-0.79	-.0082	-0.65		
-10	+.0185	+1.83	+.0164	+0.94		
-9	-.0204	-2.11	+.0013	+0.07		
-8	+.0092	+0.65	+.0054	+0.31		
-7	+.0051	+0.42	+.0083	+0.29		
-6	-.0056	-0.36	+.0022	+0.18		
-5	+.0118	+0.71	+.0127	+0.45		
-4	+.0144	+1.13	+.0296	+0.91		
-3	+.0297	+1.65	+.0421	+1.32		
-2	+.0119	+0.78	+.0447	+1.18	+.0119	+0.78
-1	-.0185	-1.32	-.0181	-0.62	-.0191	-0.99
0	+.0154	+0.96	-.0081	-0.28	+.0061	+0.19
+1	+.0285	+2.03	+.0179	+0.81	+.0361	+1.45
+2	-.0032	-0.16	+.0045	+0.07	+.0254	+0.89
+3	-.0165	-1.26	+.0062	+0.11	+.0187	+0.54
+4	+.0397	+2.01	+.0452	+0.71	+.0759	+1.47
+5	-.0185	-1.14	+.0241	+0.27	+.0575	+1.23
+6	+.0173	+1.37	+.0456	+0.43	+.0771	+1.51
+7	-.0019	-0.12	+.0291	+0.26	+.0496	+1.14
+8	-.0135	-0.71	+.0039	+0.11	+.0522	+0.96
+9	-.0063	-0.24	-.0139	-0.20	+.0451	+0.71
+10	+.0040	+0.28	-.0177	-0.36	+.0335	+0.47
+11	-.0210	-1.11	-.0245	-0.34	+.0321	+0.41
+12	+.0050	+0.34	-.0099	-0.18	+.0183	+0.36

TABLE 8

STOCKHOLDER ABNORMAL RETURNS AND CUMULATIVE PORTFOLIO ABNORMAL RETURNS FOR THE EXPANDED SAMPLE OF 21 ACQUIRED FIRMS

Relative Month	Abnormal Return	T-Statistic	Portfolio Abnormal Return from t=-12	T-Statistic	Portfolio Abnormal Return from t=-2	T-Statisti
-12	-.0297	-1.84	-.0297	-1.84		
-11	-.0018	-0.41	-.0242	-1.45		
-10	-.0254	-1.69	-.0443	-1.67		
-9	+.0104	+0.76	-.0272	-1.24		
-8	-.0060	-0.09	-.0218	-1.18		
-7	+.0269	+1.47	-.0143	-0.69		
-6	-.0246	-1.63	-.0337	-1.12		
-5	-.0049	-0.17	-.0332	-1.01		
-4	+.0073	+0.32	-.0296	-0.88		
-3	+.0189	+0.87	-.0048	-0.12		
-2	+.0269	+1.21	+.0126	+0.67	+.0269	+1.21
-1	+.0142	+1.64	+.0363	+1.25	+.0432	+1.94
0	+.1829	+4.34	+.2129	+3.49	+.2044	+4.78