

Informational releases in diversifying takeovers

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Abstract

This study attempts to reconcile two seemingly conflicting empirical findings: takeovers are efficient restructuring events, but they not seem to benefit the shareholders of the acquiring firms. We suggest that the poor abnormal returns to acquiring firms' shareholders in diversifying takeovers are in part due to negative informational releases regarding the acquirer's main industry. In a sample of 816 diversifying takeovers, we test this hypothesis by analyzing the effects of takeover announcements on the rivals of the acquiring firm. We focus our analysis on homogenous rivals, which are rivals that are more likely to be affected by the same economic shock that may result in the acquirer's decision to diversify. We identify homogenous rivals by using pre-takeover correlations in the stock returns of the acquirer and each rival firm.

We find that homogenous rivals experience statistically and economically significant negative abnormal returns at the takeover announcement. We also find that the revisions in analysts' forecasts of homogenous rivals' earnings per share are significantly negative around the takeover announcements. Taken as a whole, our results imply that a large part of the acquirer adverse price effect at the announcement of diversifying takeovers is due to negative informational releases about its principal industry. Thus, previous estimates of takeover wealth effects that use announcement period abnormal returns are likely to be biased downward.

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1. Introduction

Recent research in finance propose that industry-wide economic shocks play an important role in shaping the takeover and restructuring (see, e.g., Jensen, 1993; Comment and Schwert, 1995; Mitchell and Mulherin, 1996; Mulherin and Boone, 2000; Andrade, Mitchell, and Stafford, 2001). This strand of research suggests that takeovers and other restructuring activities are optimal responses to unexpected economic shocks. Another strand of research examines the wealth effects of takeovers on the shareholders of the acquiring firm. While there are large variations in these wealth effects, many studies find that the acquirer's shareholders experience an adverse price effect around the announcement of a takeover. This study is an attempt to reconcile the two seemingly conflicting empirical findings: takeovers are efficient restructuring events, but they not seem to benefit the shareholders of the acquiring firms.

There is ample research examining the returns to acquiring firms' shareholders around takeover announcements. Several studies find negative announcement wealth effects which are especially pronounced for acquirers in diversifying takeovers (see, e.g., Morck, Shleifer, and Vishny, 1990), takeovers of public targets (see, e.g. Moeller, Schlingemann, and Stulz, 2004), and those financed with equity (see, e.g., Travlos, 1987). One of the explanations that are suggested to explain this empirical regularity is that the announcement of a takeover reveals adverse information regarding the growth prospects of the acquirer. For example, Moeller, Schlingemann, and Stulz (2003) conclude that it is possible that the negative abnormal returns to acquirers are the result of

the takeover announcement signaling that the acquirer has exhausted its internal growth opportunities. Examining this hypothesis is, however, complicated due to the fact that the possible informational release coincides with the acquisitions. Thus, it can be very difficult to disentangle the effect of the informational release from the effect due to the acquisition itself. In this paper, we test this hypothesis by examining whether the announcement of a diversifying takeover reveals negative information about the growth prospects of the acquirer's primary industry.

Diversifying takeovers provide an ideal setting to examine the extent of informational releases in takeovers. Suppose that the acquirer's decision to undertake a diversifying acquisition is due to a decline in the prospects of its main industry that is not anticipated by market participants. In this case, the takeover announcement can reveal this negative information and results in an adverse price effect to acquirer shareholders. If a part of the acquirer's growth prospects is common to firms in the same industry, then the takeover announcement should also affect these firms. The tests in this paper are based on this insight.

In a sample of 816 diversifying takeovers during the period 1979 to 2003, we conduct different analyses to test the informational release hypothesis by examining the effect of takeover announcements on the rivals of the diversifying acquirer. First, using a variation of the methodology in Parrino (1997), we use pre-takeover correlations in stock returns to identify "homogenous" rivals, or rivals that are more likely to be affected by the same economic shock that affects the acquirer. For our overall sample, we find that the average cumulative abnormal returns (CAR) to portfolios of homogenous rivals for the 21-day window around the takeover announcement is about -1.00%, which is 70% of

the -1.41% average CAR suffered by acquirers. We also find that diversifying takeovers that results in negative (positive) CARs to acquirers are associated with negative (positive) CARs to rivals. The effect of merger announcement is more pronounced for homogenous rivals and is economically and statistically significant. We suggest that these results are consistent with takeovers releasing information that affects the valuation of the acquirer and its industry rivals.

Moeller, Schlingemann, and Stulz (2003) find that large acquirers in public-firm takeovers appear to experience the most negative CARs among all acquirers. Moeller, Schlingemann, and Stulz (2004) emphasize the importance of studying the abnormal returns to large acquirers in order to examine whether takeovers are socially beneficial. Using a subsample of large takeovers with *negative CARs* to acquirers, we find that, for the 21-day window around the announcement, homogenous rivals experience an average CAR of -4.0%, which is about 45% of the negative average CAR to acquirers.

The second approach we take to study the informational effects of takeover announcements is to examine the abnormal revisions in analysts' forecasts for rival firms' one-year earnings per share and long-term growth. Employing the methodology in Brous and Kini (1993) that accounts for both the optimism bias and the serial correlation in forecast revisions, we find that takeovers which result in negative CARs to acquirers are associated with negative forecast revisions for the median firm in the acquiring firm industry. This effect is more pronounced for homogenous rivals, and is consistent with takeover announcements releasing information regarding the prospects of the acquirer industry.

We also examine the change in industry sales growth and profitability ratios in the year of and the year following the takeover announcement. We find that for acquirers with negative announcement CARs, the median rival firm experiences a negative change in sales growth and a decline in profitability ratios. The changes are especially pronounced for homogenous rivals and in takeovers between two large firms.

We conduct several analyses to test for other potential explanations for our results. We check if the negative average wealth effects to rivals can be explained by: agency-motivated explanations, (ii) the acquisition probability hypothesis, (iii) whether they are due to foreclosure motives, (iv) or whether the diversifying takeovers hurt rivals by putting them at a competitive disadvantage vis-à-vis the acquirer. While we acknowledge that most of these explanations can potentially explain the wealth effects of some of the takeovers in our sample, our overall results are more consistent with the informational release hypothesis.

Taken as a whole, the evidence we find suggests that informational releases around takeover announcements regarding the prospects of the acquirer principal industry appear to be significant. Our results imply that a large part of the acquirer's adverse price effect in diversifying takeovers is due to negative informational releases. Thus, previous estimates of takeover wealth effects that use announcement period abnormal returns are likely to be biased downward.

This paper proceeds as follows. In Section 2, we review the literature and discuss the informational release hypothesis. Section 3 provides details of the sample and the methodology used in identifying homogenous rivals. The event study results are reported

in Section 4. Section 5 develops our cross-sectional hypotheses and presents the results of our regression analysis. Section 6 concludes the paper.

2. Background, related literature, and the informational release hypothesis

One of the most researched questions in finance is whether the shareholders of the acquiring and target firms benefit from takeovers. While all studies that examine announcement period abnormal returns conclude that target shareholders benefit from a takeover, the evidence on the acquirer returns is different across many studies. Whether the acquiring-firm shareholders benefit or lose depends on the time period examined, the method of payment, the degree of relatedness between the merging firms, the organizational form of the target, the size of the acquirer, or whether one examines dollar returns or percentage returns, among other factors.¹

Many explanations are suggested to explain the reason for the inconclusive evidence and sometimes negative announcement wealth effects to the acquirer's shareholders. First, some acquirers undertake value-destroying takeovers that benefit managers at the expense of shareholders (see, e.g, Morck, Shleifer, and Vishny, 1990). Second, a part of the takeover gains is anticipated by the market. Third, the market for corporate control is competitive to the extent that acquirers do not capture any of the takeover gains (Andrade, Mitchell, and Stafford, 2001). Fourth, the announcement of the

¹ See, e.g., Jensen and Ruback (1983), Jarrell, Brickley, and Netter (1988) for a summary of the early evidence. For more recent evidence see, e.g, Andrade, Mitchell, and Stafford (2001), Fuller, Netter, and Stegemoller (2002), Moeller, Schlingemann, and Stulz (2003), and Moeller, Schlingemann, and Stulz (2004).

bid of an equity-financed takeover reveals that the acquirer equity is overpriced [via the adverse selection problem of Myers and Majluf (1984)]. Finally, the announcement of a takeover reveals information regarding the growth prospects of the acquirer (see, e.g., Moeller, Schlingemann, and Stulz, 2003). In this paper, we conduct detailed analyses to examine the last explanation which we denote as the informational release hypothesis.

We examine whether informational releases can explain the poor returns to the acquiring-firm shareholders by examining the effect of takeover announcements on rival firms. Eckbo (1983) was the first to examine the takeover wealth effects on rivals albeit to test whether horizontal takeovers increase the likelihood of collusion in the takeover industry.² In this paper, we examine the effect of takeover announcements on announcement period abnormal and revisions in analysts' forecasts for rival firms. We also examine the relation between the acquirer CARs and post-takeover changes in industry performance. In addition, we discuss below other hypotheses under which the announcement of a diversifying takeover can affect the rivals of the acquiring firm.

This paper is related to a number of recent papers that aim at estimating the abnormal returns to acquirers after controlling for informational releases. Fuller, Netter, and Stegemoller (2002) control for the informational releases by examining abnormal returns to acquirers that undertook five or more acquisitions in a short time period. Bhagat, Dong, Hirshleifer, and Noah (2004) develop the Intervention Method econometric technique that aim at disentangling the effect of informational releases and the effect of the takeover itself on announcement period abnormal returns. Although we

² See also Stillman (1983) and Eckbo (1985, 1992), Eckbo and Wier (1985), among others. For recent papers, see Fee and Thomas (2004) and Shahrur (2004).

use a different approach, our study complements these papers with the goal of improving our understanding of the takeover wealth effects.

Our paper is also related to recent research that suggests that acquirers can earn negative abnormal even if the takeover is undertaken in order to maximize shareholders wealth. Jovanovic and Braguisky (2004) develop a model in which the acquirer's price falls at the announcement of an efficient takeover because the takeover signals poor internal growth prospects. Akdogu (2003) suggests that some acquirers may overpay for targets in order to gain a competitive advantage over their industry rivals. The author examines this hypothesis by analyzing the announcement returns on rival firms for a sample of takeovers in the telecom industry. Our study differs from the latter paper by examining a large sample of diversifying takeovers and by conducting a comprehensive analysis that goes beyond announcement period abnormal returns. Further, our evidence is inconsistent with the competitive advantage hypothesis of Akdogu (2003).

This study also contributes to the debate on the effect of diversification on firm value. Prior research has concluded that diversification destroys value (see, e.g., Lang and Stulz, 1994; Berger and Ofek, 1995). Recent theoretical and empirical research has challenged this view on many grounds (see, e.g., Maksimovic and Phillips, 2001, 2002, 2004; Matsusaka, 2001; Villalonga, 2004). In particular, our approach is related to the model in Maksimovic and Phillips (2002) which suggests that the tendency of some firms to diversify depends on industry-wide economic shocks and on differential firm productivity across industries. Thus, in this context, the decision of a firm to expand beyond its main industry can reveal information about its productivity and the future prospects of its industry.

3. Sample and Methodology

3.1. Takeover Sample

We use the Worldwide M&A Section of the Securities Data Company (SDC) database to obtain our sample of diversifying takeovers. From the comprehensive sample of takeovers for period 1979 to 2003, we consider all takeovers that satisfy the following criteria:

1. Both the target and the acquirer are U.S. public firm that are covered by the Center for Research in Security Prices (CRSP). Since we rely on Compustat's historical SIC code data item 324 to define a diversifying takeover, we require that both the acquirer and the target be covered by Compustat.
2. The deal is listed by SDC as completed.
3. The deal value is greater than one million. We also require that the deal value be at least 1 percent of the market value of the acquirer equity.
4. The percentage of the target shares held by the acquirer prior to the announcement is less than 50 percent and the acquirer obtains more than 50 percent of the target shares.
5. The target's 3-digit primary SIC code is different from that of the acquirer.
6. The acquirer has available stock returns for at least two years in the period that ends six-months prior to the takeover announcement. This restriction is imposed in order to be able to compute the measures needed to identify homogenous rivals.

We define a diversifying takeover as one where the acquirer's primary SIC code is different from that of the target. Alternative specifications that account for the fact some takeover firms operate in more than one industry yields similar results and are discussed in the robustness section. Kahle and Walkling (1996) find that one major source of the inaccuracy of Compustat industry classifications is that the Primary SIC Code data item is based on the current primary SIC code of a given firm, and thus does not account for the fact that a large number of firms change their primary SIC code over time. They report that 23 percent of the firms common to Compustat and CRSP have had their SIC codes changed at least once over the 1974 to 1993 period. We use Compustat's Historical SIC Code data item (item 324), which represents the history of primary SIC codes for any particular firm. Since Compustat reports the historical primary SIC code from 1987 onward, we use the 1987 SIC code for years prior to 1987. The above restrictions result in a sample of 816 diversifying takeovers.

Table 1 presents some summary statistics for the sample of 816 diversified takeovers across the 59 two-digit SIC code industries in our sample. The number of takeovers per industry ranges from a maximum of 74 to a minimum of 1. There is a substantial skewness in the acquirer and target size. The mean (median) acquirer size is 7.1 (1.4) billion dollars, and the mean (median) target size in our sample is 1.1 (0.18) billion dollars. There is considerable variation in the average number of firms in 4-digit SIC codes that are associated with the corresponding 2-digit SIC code. For example the average number of firms in the 4-digit SIC corresponding to *Holding Offices* (SIC code 67) is 152, while that for *Agricultural Services* (SIC code 07) is just 9. The mean (median) number of firms in 4-digit SIC codes for any given 2-digit SIC is 44 (21). This

is one of the motivations to identify only those rival firms that are most closely associated with the acquirer. Our measure of acquirer homogeneity that is described below is an attempt to capture the idea that information releases about an industry may affect some rivals more than others, due to the substantial variation in the products sold by firms in any given industry.

3.2. Acquirer Homogeneity

Parrino (1997) argues that firms that are governed by common production technologies or competing in similar product markets are more likely to be similar, i.e. their sensitivity to economic shocks is likely to affect their cash flow in a similar manner. He uses this argument to compute a measure of industry homogeneity which essentially captures the degree of commonality between all firms in an industry. Thus, in Parrino (1997) a measure of industry homogeneity is computed for each industry in his sample.

In the spirit of Parrino (1997), we construct a measure of *acquirer homogeneity* which is essentially a measure of the “similarity” of each rival firm in the acquirer industry with the acquirer firm. Thus, homogeneous rivals are simply a finer classification within the same industry as the acquirer, consisting of firms that are most “similar” to the acquirer. We compute this measure in order to analyze the effect of takeover announcement on rival firms in the acquirer industry that are most homogeneous with the acquirer firm. We construct this measure for each of the 816 acquirer firms in our final sample. The details of our construction are described below.

We define rival firms as those firms in the same 4-digit SIC code as the acquirer firm, except the acquirer firm itself. In order to further examine rival returns, we classify

some rival firms as those that are most closely correlated with the acquiring firm. We refer to these firms as homogeneous rivals. The correlation measure that we use as a proxy for homogeneity is computed as follows. First, for each firm in the four-digit SIC code of the acquiring firm, we regress the 60 monthly returns in the five-year period that ends six months before the takeover announcement on an equally weighted portfolio of all stocks in the CRSP tapes and the acquirer's monthly returns. For example, consider an acquirer A in industry I (based on the four-digit SIC code), who announces a takeover with a target T on August 15, 2000. Thus the model is estimated with 60 monthly returns from March 1995 to February 2000. We estimate the following two-factor model, for all firms in industry I, except for the acquiring firm.³

$$r_{jt} = \beta_0 + \beta_1 r_{Bt} + \beta_2 r_{mt} + \varepsilon_{jt}$$

where;

r_{jt} is the return for rival stock j in industry I for the month t

r_{Bt} is the return for the acquirer firm in industry I for the month t

r_{mt} is the equally weighted return on all stocks in the CRSP database for month t

Next we estimate the partial correlation coefficient between the returns for each rival firm j and the returns for the acquirer. The partial correlation coefficient is a measure of the behavior between the returns for the rival firm and the returns for the acquirer firm when the return for the market is held fixed, i.e. we compute the partial correlation coefficient between r_{jt} and r_{Bt} . In order for a firm to be included in the computation of acquirer homogeneity, we require that both the acquirer and the rival firm have at least 12 usable monthly returns in the five-year period ending six months prior to

³ By construction, the partial correlation of the acquirer firm with itself will be equal to 1.

the takeover announcement. In what follows, we consider a rival firm as a homogenous rival if it lies in the top quartile of the acquirer homogeneity measure.

3.3. Measuring cumulative abnormal returns

We estimate abnormal returns to firm i at date t (AR_{it}) as :

$$AR_{it} = R_{it} - \alpha_i - \beta_i R_{mt},$$

where R_{mt} is the return on the CRSP value-weighted index on day t , R_{it} is the realized return to firm i on day t , and α_i and β_i are the parameters of a market model estimated over the $(-255, -46)$ window relative to the announcement. We require a minimum of 100 daily returns, otherwise the firm is omitted. The takeover announcement date is the date on which either the target or the acquirer makes a public announcement regarding the takeover as reported by SDC. To estimate CARs to rivals and homogenous rivals we follow the literature by forming equally weighted portfolios to account for any contemporaneous cross-correlation of returns (see, e.g., Eckbo, 1983; Song and Walkling, 2000). We follow the methodology of Mikkelson and Partch (1988) to test for the statistical significance of CARs. We also test for the significance of the percentage of positive CARs using a nonparametric generalized sign test. This test uses the fraction of positive CARs in the estimation period as the fraction under the null hypothesis instead of assuming 50%.

4. Results

4.1 Announcement period returns to overall sample of diversified takeovers

We present our results for CARs for the acquirers, rivals, and homogeneous rivals in Table 2. Consistent with the extant literature on takeovers during the 1980s and 1990s, acquirers lose at the announcement of diversifying takeovers. The mean CAR to acquirers is -1.41% for the (-10, 10) window and is significant at the 1 percent level. The mean number of rivals for our sample of 816 takeovers is 32.13 and the mean CAR to these rivals is a statistically significant -0.28% for the same window. The top quartile among these rivals based on the acquirer homogeneity measure account for about 7.13 firms per takeover. We find that the homogeneous rivals lose significantly more than all rivals. The mean CAR for homogeneous rivals for the (-10, 10) window is -0.98%. Thus, the average CAR to all rivals (homogeneous rivals) is about 20% (70%) of the average CAR to the acquirers. The results for the shorter windows (-1, 1) and (-5, 5) are similar to those for the (-10, 10) window, although the CARs for the (-10, 10) window are more pronounced. These results suggest that there is negative information released by the takeover announcement regarding the future prospects of the acquirer's industry. In order to show that the CARs are mainly due to the takeover announcement and not an artifact of the model used to estimate abnormal returns, we also report the CARs for the (20, 30) window. As it is shown in Table 2, most of the CARs reported for this window are insignificant.

4.2 Alternative explanations

The evidence from the overall subsample is consistent with the hypothesis that the takeover announcement releases negative information about the future prospects of the acquirer's principal industry. Note also that the overall evidence is inconsistent with agency-related explanations that predicts a positive or zero CAR to rival firms; if the takeover is due to agency problems in the acquiring firm, then rivals should benefit or remain unaffected at the takeover announcement. The evidence, however, is consistent with the hypothesis that diversifying mergers hurt rival firms by putting them at a competitive disadvantage vis-à-vis the acquirer. In order to further investigate the informational release hypothesis and differentiate it from other alternative explanations, we split our sample of diversified takeovers into those that have positive and negative announcement wealth effects to the acquirer. We use the acquirer CAR for the (-10, 10) window. This results in a set of 360 (456) takeovers for the positive (negative) subsample.

Panel A of Table 3 presents our event study results for the positive acquirer CAR subsample. The mean acquirer CAR for the window (-10, 10) for this subsample is 8.70%, which is statistically significant at the 1 percent level. The corresponding mean CAR for rivals (homogeneous rivals) is 0.94% (0.85%) and significant at the 1 percent level. The results are qualitatively similar for the window (-5, 5). For this window the acquirer, rivals, and homogeneous rivals have positive CARs. This evidence is inconsistent with takeovers giving the acquirer a competitive edge over its industry rivals. These results are consistent with the takeover releasing positive information about potential synergistic takeovers that may be available to rival firms.

The event study results for the negative acquirer CAR subsample are reported in panel B of Table 3. We find that the mean CAR for this set of 456 takeovers is -9.38% for the acquirer firms for the (-10, 10) window. For the same window, the mean CAR for rivals (homogeneous rivals) is -1.24% (-2.43%) and is statistically significant at the 1 percent level. Thus, the mean CAR of rivals (homogeneous rivals) is about 13% (26%) of the negative CAR to the acquirer. The results are similar for the window (-5,5) where the CAR for the acquirers, rivals, and homogeneous rivals are -6.07%, -0.66% , and -1.60% respectively. If the negative returns to the acquirers were largely due to agency problems, we would not expect rivals to have a negative average CAR. We interpret these results as evidence consistent with the hypothesis that takeovers with negative CARs to acquirers release negative information about the future prospects of the acquirer industry. We consider below some additional subsamples of the negative acquirer-CAR takeovers.

4.3. Announcement period returns to special subsamples of diversified takeovers

The mean homogeneity of rival firms in an industry varies considerably from a low of about 0.20 to a high of about 0.78. Further, the number of firms in an industry and the dispersion of rival firm homogeneity within an industry also vary considerably. Thus the homogeneity of certain firms in the top quartile of one industry could well be below the homogeneity of some firms in the bottom quartile of some other industry. In order to include the effect of this dispersion of the acquirer homogeneity measure, we compute a measure of the coefficient of variation of acquirer homogeneity. We define this measure for each acquirer industry as follows:

Coefficient of Variation of acquirer Homogeneity (CVAR)= Mean homogeneity of all rivals in the industry / Standard deviation of homogeneity of all rivals in the industry.

This results in a single value of CVAR for every acquirer firm in our sample. We now compute the median CVAR for the sample of 456 takeovers that are in the negative acquirer CAR subsample. Therefore, the higher (lower) the CVAR, the higher (lower) is the similarity of firms within that industry.

In panel A of Table 4 we present results for the special case when the CVAR for a takeover is greater than the median CVAR. Simply put, we retain only those takeovers which are in most homogeneous industries. This results in a sample of 230 takeovers. Consistent with our earlier results we find that the mean CAR to the acquirers in this sample is -9.72% and the corresponding mean CAR to the rivals (homogeneous rivals) is -2.06% (-3.31%). All the CARs are significant at the 1 percent level. For this subsample, we find that mean rival (homogeneous rivals) CAR is about 21% (35%) of the acquirer CAR. As a percentage of acquirer CAR, rivals and homogeneous rivals account for a significantly higher proportion in this subsample of takeovers in industries that are more homogeneous than the median industry in the sample. We view this as evidence consistent with our hypothesis that takeovers release negative information about the future prospects of the industry, especially so for industries that consist of firms that are very similar to the acquiring firm.

In panel B of Table 4, we examine another aspect of these takeovers, namely large takeovers. We should expect takeovers by large acquirers to have more signaling effects about the prospects of the acquirer industry. In this subsample we consider only those

acquirers who have a market value of equity that is above its mean. We impose the further restriction that the deal value is at least 5 percent of the acquirer's equity market value. This results in a sample of 49 takeovers. While the numbers may seem low, the total value of these firms is significantly high. Our results for this subsample are stronger and we find that the CAR of the acquirer, rivals, and homogeneous rivals are statistically significant at the 1 percent level and equal to -9.27%, -1.98% and -3.97% respectively. In this cut, mean rival CARs (homogeneous rival CARs) are about 21% (42%) of mean acquirer CARs.

In order to further examine the impact of large takeovers, we now include the further restriction that only those takeovers whose CVAR is higher than the median CVAR are included from the sample of 49 takeovers described above. This results in a final sample of 23 takeovers that are not only large but are in industries that consist of highly homogeneous firms. One motivation for examining this small sample is based on Moeller, Schlingemann, and Stulz (2004) who argue that about 80% of the market value of the takeovers is contained in the tail of the distribution which accounts for a very small number of takeovers.

The results for this sample of 23 takeovers are presented in Panel C of Table 4. We find that the mean negative CAR to the rivals (homogeneous rivals) for the window (-10, 10) is -3.07% (-7.63%). Thus, while rivals CARs are about 28% of the acquirer CAR, homogeneous rivals experience a negative mean CAR that is about 72% of the mean CAR to acquirers. We interpret this as strong support for our hypothesis and that the negative informational releases are especially pronounced in large takeovers and in industries with highly homogeneous firms.

4.4. Analyst forecast revisions

In order to further investigate whether takeovers release information about the acquirer's industry, we analyze analysts' forecast revisions around the announcement dates of the takeover. Kini and Brous (1992) argue and document that a takeover announcement conveys favorable information about target firms and there is a systematic upward revision in analysts' forecasts in the announcement month. We use the revision in analysts' forecasts as a proxy for the information released about the future prospects of the industry. Thus, a downward (upward) revision in the mean consensus forecast of all firms in the industry is likely to indicate a downward (upward) trend in the industry. Our computation of the mean consensus industry forecast revision is described below.

We use the US version of IBES 2003 tapes in order to estimate abnormal forecast revisions. IBES reports the mean consensus one year earnings per share (EPS) forecasts for individual firms on a monthly basis. The consensus is the average of EPS forecasts made by individual analysts. We first compute the consensus forecast revision for each firm i in month t as follows; $FR_{i,t} = (F_{i,t+1} - F_{i,t-1}) / P_i$ where;

$F_{i,t+1}$ and $F_{i,t-1}$ are the consensus forecast revisions for firm i in the month following the takeover and the month preceding the takeover respectively. Therefore we compute a forecast revision around the three month window around the takeover.

P_i is the stock price of the firm i at the end on the month prior to the announcement of the takeover.

Kini and Brous (1992) document that previous studies such as Pound (1988) assume that the expected forecast revision equals zero and therefore the observed forecast revision is an unbiased estimate of the abnormal forecast revision. We follow the

methodology in Kini and Brous (1992) to mitigate any natural downward that may exist in analyst forecast revisions. In order to correct for this downward bias we compute the ex-post abnormal or unexpected forecast revision using their model;

$$AFR_{i,t} = FR_{i,t} - E[FR_{i,t}]$$

Where,

$AFR_{i,t}$ is the abnormal or unexpected consensus forecast revision for firm i in month t .

$FR_{i,t}$ is the observed consensus forecast revision for firm i in month t .

$E[FR_{i,t}]$ is the expected consensus forecast revision for firm i in month t .

In order to compute the expected consensus forecast revision for firm i in month t , we rely on the following model;

$$E[FR_{i,t}] = k_i + \frac{1}{n} \sum_{s=1}^{n-1} \varepsilon_{i,t-s}$$

The expected consensus forecast revision consists of two components; k_i and $\frac{1}{n} \sum_{s=1}^{n-1} \varepsilon_{i,t-s}$.

k_i is a measure of the bias for firm i and is computed as the average consensus forecast revision for firm i from t to month $t-4$, where month t is the month when the takeover is announced.

The unexpected component $\frac{1}{n} \sum_{s=1}^{n-1} \varepsilon_{i,t-s}$ is measured as the difference between

k_i and the observed consensus forecast for firm i in month t . The expected consensus forecast revision is then the forecasted component. The weights for each month's unexpected component k_i plus the weighted average of the four previous months' unexpected component where the weights are equal to 0.20. We include all firms in the IBES database where the consensus forecast is derived from at least two analysts.

We argue that if takeovers release information about the future prospects of an industry, then the takeover announcement is likely to affect the analysts' estimates of firms in that industry. We consider the average of the mean consensus abnormal forecast revisions for all firms in an industry as a proxy for analysts' estimates about future industry prospects.

Table 5 presents the results of mean abnormal analyst forecast revision in the three months surrounding the takeover announcement, i.e. the forecast revision between the month subsequent to the takeover and the month preceding it. We lose some takeovers from our original sample of 816, due to missing observations from the IBES data, resulting in an overall sample of 795 takeovers for this analysis. We find that for the overall sample, the mean revision in forecasts for rivals (homogeneous rivals) is about 0.14% (0.01%), but not statistically significant. For the positive sub-sample of 347 takeovers, we find that the mean revision for rivals firms (homogeneous rivals) is about 0.08% (0.06%) and not statistically different from zero. For the negative sub-sample of 448 takeovers, we document similar results except that there is a downward revision in their forecast for homogeneous rivals of about -0.02%, but it is not statistically significant. We suspect that the insignificant mean abnormal revision is due to outliers. Therefore, we examine the proportion of takeovers with positive forecast revisions. As reported in Table 5, we find that diversifying takeovers are on average associated with negative forecasts revisions for the rivals of the acquiring firm. This result is consistent with the evidence based on the examination of announcement period CARs.

4.5. Additional analysis

Our next step is to report the results of additional analyses that we have conducted regarding the change in industry sales growth and profitability ratios in the year of and the year following the takeover announcement. We also conduct further analyses to test for other potential explanations for our results. Specifically, we examine whether the negative average wealth effects to rivals can be explained by other alternate hypotheses such as: agency-motivated explanations, (ii) the acquisition probability hypothesis, (iii) foreclosure motives, (iv) or the competitive advantage hypothesis. Many of these analyses are based on a multivariate framework and support the conclusions we draw in this paper.

5. Conclusion

This study attempts to reconcile two seemingly conflicting empirical findings: takeovers are efficient restructuring events, but they not seem to benefit the shareholders of the acquiring firms. We argue that the poor abnormal returns to acquiring firms may be due to informational releases regarding the future prospects of the acquirer's main industry. We argue that diversifying takeovers provide a unique setting to examine the extent of informational releases in takeovers. Suppose the acquirer's decision to undertake a diversifying acquisition is due to a decline in the prospects of its main industry that is not fully anticipated by market participants. In this case, the takeover announcement can reveal this negative information and results in an adverse price effect to acquirer shareholders. If a part of the acquirer growth prospects is common to firms in

the same industry, then the takeover announcement should also affect these firms. The tests in this paper are based on this insight.

We examine the announcement effects of diversifying takeovers on the rivals of the acquiring firm. We focus our analyses on homogenous rivals, which are rival firms that are most similar to the acquirer and are identified using a variation of the methodology on Parrino (1997). We find that the mean CAR to rivals. The negative mean CAR to rivals is especially pronounced for homogenous rivals and is statistically and economically significant. We also find that rivals gain when acquirers gain and rivals lose when the acquirer firm has a negative CAR. These results are especially stronger for homogenous rivals. We interpret these results as evidence consistent with the hypothesis that diversifying takeovers release information regarding the future prospects of the acquirer's industry. On average, the information released is negative and economically significant.

We also examine the effect of takeover announcements on analysts' forecast revisions for the 1-year consensus earnings per share and long-term growth forecasts for rival firms. Overall the evidence we find suggests that the takeover releases information about the future prospects of the acquirer principal industry. Our results suggest that a significant part of the acquirer adverse price effect in diversifying takeovers is due to negative informational releases. Thus, previous estimates of takeover wealth effects that use announcement period abnormal returns are likely to be biased downward.

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Table 1: Descriptive Statistics

This table reports some descriptive statistics by 2-digit SIC codes for the sample of 816 diversified takeovers. The acquirer size is defined as the market value of the acquirer firm's equity in millions of dollars on announcement of the takeover. The size of the target firm is the dollar value in millions of the target firm's equity. The last two columns represent the mean (median) number of firms in all the 4-digit SIC codes that correspond to the 2-digit Industry.

SIC code	Industry	# of Takeovers	Acquirer Size (\$ mn.)		Target Size (\$ mn.)		# of firms in 4-digit SIC	
			Mean	Median	Mean	Median	Mean	Median
1	Agricultural Production Crops	1	710	710	43	43	20	20
7	Agricultural Services	1	6,559	6,559	284	284	2	2
10	Metal Mining	4	530	434	151	102	40	39
12	Coal Mining	2	20	20	7	7	7	7
13	Oil And Gas Extraction	12	2,519	1,838	943	358	113	30
15	Building Construction	4	1,079	845	220	182	29	31
16	Heavy Construction	3	978	167	156	150	9	9
17	Construction Contractors	2	95	95	53	53	22	22
20	Food Products	25	6,844	3,693	1,378	308	10	9
21	Tobacco Products	2	37,382	37,382	16,359	16,359	4	4
22	Textile Mill Products	7	783	231	395	125	9	8
23	Apparel	9	1,583	1,506	514	354	14	15
24	Lumber and Wood Products	5	5,320	2,616	2,376	222	5	6
25	Furniture And Fixtures	2	247	247	113	113	7	7
26	Paper and Allied Products	20	8,492	3,443	1,978	579	18	22
27	Printing and Publishing	13	1,257	949	319	68	11	11
28	Chemical Products	54	12,197	2,779	1,162	230	62	24
29	Petroleum Refining	6	11,282	7,531	1,575	1,601	40	42
30	Rubber Products	14	750	684	211	136	25	35
31	Leather Products	2	38	38	8	8	19	19
32	Stone and Concrete	7	3,416	2,219	292	212	5	4
33	Primary Metals	16	7,864	1,173	1,114	542	17	11
34	Fabricated Equipment	26	2,248	1,043	439	72	14	14
35	Industrial Equipment	74	11,848	953	561	123	30	22
36	Electronics	59	7,983	514	940	117	49	26
37	Transportation Equipment	42	4,323	1,637	720	258	20	13
38	Measuring Instruments	38	3,204	925	422	121	34	29
39	Miscellaneous Manufacturing	12	2,064	600	460	59	13	12
40	Railroad Transportation	4	5,895	6,234	630	616	18	18
42	Motor Transportation	2	1,046	1,046	125	125	37	37
45	Transportation - Air	2	6,232	6,232	619	619	8	8
48	Communications	28	22,706	2,564	4,998	672	54	31

49	Electric, Gas, And Sanitary	38	3,615	2,345	1,347	598	37	41
50	Durable Goods	9	594	95	99	70	17	18
51	Non-durable Goods	15	2,819	1,935	988	201	16	15
53	General Merchandise	10	9,053	10,661	809	418	21	22
54	Food Stores	3	253	293	116	153	26	26
55	Automotive Dealers	1	67	67	20	20	18	18
56	Apparel Stores	1	97	97	3	3	9	9
58	Eating And Drinking	2	945	945	163	163	56	56
59	Misc. Retail	10	2,495	2,352	979	157	29	21
60	Depository Institutions	51	3,950	1,046	228	125	89	52
61	Non-depository Institutions	8	58,597	5,124	5,992	185	11	11
62	Security and Commodity	7	6,726	198	1,214	845	46	47
63	Insurance	34	15,012	2,150	995	269	40	28
64	Insurance Agents	2	2,629	2,629	244	244	34	34
65	Real Estate	3	302	235	96	53	12	14
67	Holding Offices	17	5,269	385	491	103	124	152
70	Hotels	4	3,774	3,477	1,121	619	32	33
72	Personal Services	5	2,901	1,341	161	74	15	13
73	Business Services	61	4,811	1,581	924	221	135	81
75	Automotive Services	2	804	804	74	74	9	9
76	Misc. Services	1	157	157	443	443	5	5
78	Motion Pictures	6	5,590	2,269	11,057	4,019	27	28
79	Amusement Services	4	1,992	651	304	135	36	38
80	Health Services	16	2,246	1,267	369	109	13	12
82	Educational Services	1	256	256	319	319	17	17
83	Social Services	1	4	4	4	4	2	2
87	Engineering Services	6	1,875	1,475	384	122	32	33
	Overall	816	7,183	1,427	1,076	173	44	21

Table 2: Announcement period abnormal returns for overall sample of diversified takeovers

This table reports announcement period Cumulative Abnormal Returns (CAR) to acquirers, rivals and homogeneous rivals for a sample of 816 diversified takeovers during the 1979-2003 period. The takeover sample is obtained from the Worldwide M&A section of the Securities Data Company (SDC). A takeover is considered diversified if the acquirer and the target have different primary three-digit SIC codes. All Rivals are defined as firms in the same 4-digit SIC code as the acquirer firm. Homogeneous Rivals are defined as the set of firms who are in the upper quartile of the acquirer homogeneity coefficient, which is computed based on the methodology used in Parrino (1997). A nonparametric generalized sign test is used to test for the percentage of positive cumulative abnormal returns. The symbols *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

CAR (%) to the sample of diversified takeovers						
# of Port.(mean # of firms/Port.)	Acquirers		All Rivals		Homogenous Rivals	
	816 (1.00)		816 (32.13)		816 (7.13)	
Window	Mean (t - stat)	% Positive (z - stat)	Mean (t - stat)	% Positive (z - stat)	Mean (t - stat)	% Positive (z - stat)
(-2,+2)	-1.06*** (-7.77)	39.34*** (-4.66)	-0.07 (-0.98)	47.08*** (-2.98)	-0.2 (-1.62)	47.43 (-0.40)
(-5,+5)	-1.26*** (-7.03)	41.67*** (-3.33)	-0.20** (-2.14)	45.22*** (-4.03)	-0.65*** (-3.26)	44.49** (-2.08)
(-10,+10)	-1.41*** (-5.25)	44.12* (-1.92)	-0.28 (-1.35)	50.06 (-1.28)	-0.98*** (-3.19)	46.20 (-1.10)
(+20,+30)	-0.95*** (-2.75)	44.70 (-1.58)	0.08 (-0.71)	47.32*** (-2.84)	0.20 (-0.20)	49.01 (0.51)

Table 3: Announcement period abnormal returns for subsamples based on the acquirer's CAR

This table reports announcement period Cumulative Abnormal Returns (CAR) to acquirers, rivals and homogeneous rivals for a sample of 816 diversified takeovers during the 1979-2003 period. The takeover sample is obtained from the Worldwide M&A section of the Securities Data Company (SDC). A takeover is considered diversified if the acquirer and the target have different primary three-digit SIC codes. All Rivals are defined as firms in the same 4-digit SIC code as the acquirer firm. Homogeneous Rivals are defined as the set of firms who are in the upper quartile of the acquirer homogeneity coefficient, which is computed based on the methodology used in Parrino (1997). Panel A (Panel B) contains CARs for the subsample of takeovers with positive (negative) CARs to the acquirer. A nonparametric generalized sign test is used to test for the percentage of positive cumulative abnormal returns. The symbols *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

Panel A: CAR (%) to the subsample of diversified takeovers with positive CARs to acquirers

# of Port.(mean # of firms/Port.)	Acquirers 360 (1.00)		All Rivals 360 (30.83)		Homogeneous Rivals 360 (6.77)	
	Mean (t - stat)	% Positive (z - stat)	Mean (t - stat)	% Positive (z - stat)	Mean (t - stat)	% Positive (z - stat)
(-2,+2)	2.82*** (9.52)	67.78*** (7.71)	0.26** (2.55)	54.08 (0.65)	0.39** (2.14)	55.28*** (2.68)
(-5,+5)	4.82*** (10.43)	73.33*** (9.83)	0.38** (2.07)	52.68 (0.12)	0.55** (2.31)	51.39 (1.20)
(-10,+10)	8.70*** (13.8)	100.00*** (19.96)	0.94*** (3.62)	59.44*** (2.67)	0.85*** (2.81)	54.44** (2.36)
(+20,+30)	-1.19 (-1.46)	45.40 (-0.79)	0.15 (-0.14)	48.59 (-1.42)	0.40 (0.38)	47.35 (-0.33)

Panel B: CAR (%) to the subsample of diversified takeovers with negative CARs to acquirers

# of Port.(mean # of firms/Port.)	Acquirers 456 (1.00)		All Rivals 456 (33.16)		Homogeneous Rivals 456 (7.42)	
	Mean (t - stat)	% Positive (z - stat)	Mean (t - stat)	% Positive (z - stat)	Mean (t - stat)	% Positive (z - stat)
(-2,+2)	-4.12*** (-18.85)	16.89*** (-13.08)	-0.33*** (-3.59)	41.56*** (-4.56)	-0.66*** (-4.07)	41.23*** (-2.92)
(-5,+5)	-6.07*** (-18.67)	16.67*** (-13.17)	-0.66*** (-4.71)	39.33*** (-5.5)	-1.60*** (-6.42)	39.04*** (-3.85)
(-10,+10)	-9.38*** (-19.29)	0.00*** (-20.3)	-1.24*** (-5.03)	42.67*** (-4.09)	-2.43*** (-6.76)	39.69*** (-3.57)
(+20,+30)	-0.76** (-2.38)	44.15 (-1.42)	0.03 (-0.83)	46.31** (-2.53)	0.05 (-0.61)	50.33 (0.97)

Table 4: Announcement period abnormal returns for subsamples based on the acquirer size and CVAR

This table reports announcement period Cumulative Abnormal Returns (CAR) to acquirers, rivals and homogeneous rivals for special sub-samples of 456 negative CAR diversified takeovers during the 1979-2003 period. All Rivals are defined as firms in the same 4-digit SIC code as the acquirer firm. Homogeneous Rivals are defined as the set of firms who are in the upper quartile of the acquirer homogeneity coefficient, which is computed based on the methodology used in Parrino (1997). CVAR is defined as mean homogeneity of all rivals in the industry divided by the standard deviation of homogeneity of all rivals in the industry. Relative size is defined as the ratio of the deal size to the acquirer's market value of equity. Panel A contains CARs for the subsample of takeovers with CVAR above its median. Panel B contains CARs for the subsample of takeovers with relative size greater than 5 percent and acquirer market value of equity is greater than its mean. Panel C contains takeovers with CVAR above its median, relative size above 5 percent, and acquirer's market value of equity greater than its mean. A nonparametric generalized sign test is used to test for the percentage of positive cumulative abnormal returns. The symbols *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

Panel A: CVAR above median

# of Port.(mean # of firms/Port.)	Acquirers 230 (1.00)		All Rivals 230 (35.88)		Homogenous Rivals 230 (8.01)	
	Mean (t - stat)	% Positive (z - stat)	Mean (t - stat)	% Positive (z - stat)	Mean (t - stat)	% Positive (z - stat)
Window						
(-2,+2)	-4.06*** (-14.25)	16.96*** (-9.33)	-0.74*** (-4.43)	38.86*** (-4.10)	-1.07*** (-4.52)	36.52*** (-3.57)
(-5,+5)	-6.32*** (-14.53)	17.39*** (-9.19)	-1.26*** (-5.12)	37.99*** (-4.37)	-2.04*** (-6.10)	34.78*** (-4.10)
(-10,+10)	-9.72*** (-14.67)	0.00*** (-14.47)	-2.06*** (-5.55)	41.48*** (-3.31)	-3.31*** (-6.92)	37.39*** (-3.31)

Panel B: Relative size above 5 % and acquirer's MV of equity greater than its mean

# of Port.(mean # of firms/Port.)	Acquirers 49 (1.00)		All Rivals 49 (30.67)		Homogeneous Rivals 49 (6.98)	
	Mean (t - stat)	% Positive (z - stat)	Mean (t - stat)	% Positive (z - stat)	Mean (t - stat)	% Positive (z - stat)
Window						
(-2,+2)	-5.89*** (-9.66)	8.16*** (-5.61)	-0.81** (-2.40)	33.33** (-2.56)	-1.14** (-2.45)	40.82 (-1.01)
(-5,+5)	-7.90*** (-8.85)	10.20*** (-5.32)	-1.61*** (-3.59)	31.25*** (-2.85)	-2.85*** (-4.06)	32.65** (-2.16)
(-10,+10)	-9.27*** (-7.15)	0.00*** (-6.75)	-1.98*** (-3.41)	41.67 (-1.40)	-3.97*** (-4.64)	36.73 (-1.58)

Panel C: CVAR above median, Relative size above 5 %, and acquirer's MV of equity greater than its mean

# of Port.(mean # of firms/Port.)	Acquirers 23 (1.00)		All Rivals 23 (45.04)		Homogeneous Rivals 23 (9.65)	
	Mean (t - stat)	% Positive (z - stat)	Mean (t - stat)	% Positive (z - stat)	Mean (t - stat)	% Positive (z - stat)
Window						
(-2,+2)	-6.30*** (-7.39)	4.35*** (-4.21)	-1.75*** (-3.64)	26.09*** (-2.65)	-1.86*** (-2.64)	39.13 (-0.86)
(-5,+5)	-9.72*** (-7.46)	8.70*** (-3.79)	-3.48*** (-4.87)	21.74*** (-3.07)	-5.32*** (-4.78)	21.74** (-2.53)
(-10,+10)	-10.66*** (-5.69)	0.00*** (-4.63)	-4.88*** (-5.17)	21.74*** (-3.07)	-7.63*** (-5.82)	30.43* (-1.70)

Table 5: Revisions in analysts' forecasts

This table reports revisions in mean abnormal consensus forecasts for rivals and homogeneous rivals over the three-month period around the takeover announcement. The sample consists of 795 diversifying takeovers during the 1979-2003 period. A takeover is considered horizontal if the bidder and the target have the same primary four-digit SIC code. Abnormal revisions are estimated using the methodology in Brous and Kini (1993). The Acquirer cumulative abnormal returns (CAR) are estimated using a market model and are based on the (-10,10) window. The symbols *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	All Rivals			Homogenous Rivals		
	N	Mean (t-stat)	%Positive (z-stat)	N	Mean (t-stat)	%Positive (z-stat)
Overall sample	795	0.0014 (1.53)	45.87*** (-2.46)	795	0.0001 (0.18)	43.40*** (-3.72)
Positive Acquirer CAR Subsample	347	0.0008 (0.72)	46.51 (-1.37)	347	0.0006 (0.53)	43.23*** (-2.52)
Negative Acquirer CAR Subsample	448	0.0018 (1.36)	45.36** (-2.07)	448	-0.0002 (-0.42)	43.53*** (-2.74)