WORKING PAPERS

LIFE AFTER TAKEOVER

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I. Introduction

For the fourth time in this century, America has been caught up in
merger mania. A distinguishing characteristic of the 1980s merger wave
has been the high incidence of tender offer takeovers, that is, mergers
effected following an offer from the acquirer directly to target company
shareholders, bypassing target company management.

There is a substantial literature in economics, corporate finance,
and law arguing that such tender offer takeovers play an important, or
potentially important, role in purging inefficient managers and forcing
incumbents to hew the profit maximization line or face displacement. In
his pioneering article on the subject, Henry G. Manne [8, p. 113] wrote:
"Only the takeover scheme provides some assurance of competitive
efficiency among corporate managers and thereby affords strong protection
to the interests of vast numbers of small, non-controlling shareholders."
In their literature survey, Jensen and Ruback [7, p. 25] point to the
negative abnormal stock price returns of target firms before takeover and
find "[t]his below normal performance ... consistent with the hypothesis

that inefficient target management caused target firms to perform badly."
They add that "there is currently no evidence that directly links these
negative pre-merger returns to inefficiency." Easterbrook and Fischel
conclude [6, p. 1169] that "The most probable explanation for unfriendly
takeovers emphasizes their role in monitoring the performance of
corporate managers. The tender bidding process polices managers whether
or not a tender offer occurs, and disciplines or replaces them if they
stray too far from the service of the shareholders." The President's
Council of Economic Advisers was more cautious [12, pp. 198-199]:

> Takeovers of ... firms [disfavored by the market] can
> discipline managements and impose new corporate strategies in place
> of unsuccessful ones. These findings do not establish that all
> target firms are poorly managed, and they do not suggest that
> management efficiencies are the dominant source of gains from
> mergers and acquisitions. They do, however, suggest that poor
> management at target firms cannot be discarded as a motive for
> takeovers....

The received wisdom on tender offer takeovers implies two testable
hypotheses. First, to the extent that a sizeable fraction of takeovers
are directed toward displacing inefficient managers, the pre-takeover
profitability of targets is expected to be lower than that of non-target
peer firms, other things such as industry business conditions being held
equal. Second, both the logic of inefficient management displacement and
the possibility of gaining post-takeover "synergies" imply an improvement
in post-takeover profitability relative to the pre-takeover situation.
These are hypotheses that should be tested directly, and not merely given
as one of many possible explanations for the movement of stock prices at
the time of a takeover "event."[1]

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1. See [7] and the studies surveyed therein.

II. The Line of Business Data

An obstacle to evaluating post-merger performance is that the acquired entity normally ceases to publish income statement and balance sheet information once it is absorbed by the acquirer. The problem can be substantially overcome if one has financial performance data disaggregated to the level of individual operating units.[2] Such data were systematically gathered under the Federal Trade Commission's Line of Business program. For the years 1975-77, a panel of from 456 to 471 characteristically large corporations broke down their domestic financial reports by individual "LBs" geared to a list of 261 manufacturing and 14 (broader) nonmanufacturing industry categories. The average company reported in 1977 on 8.0 manufacturing LBs, with a range of from one to (averaging over the five leaders) 53. The Line of Business sample members were responsible for 75 percent of all manufacturing and minerals industry mergers, measured by volume of assets acquired, recorded on Federal Trade Commission lists [14] of acquisitions of companies with $10 million assets or more over the years 1950-1976.

In addition to consummating approximately 6,000 "normal" (i.e., bilaterially negotiated) mergers, the Line of Business respondents made 82 tender offer acquisitions of manufacturing companies between 1958 and 1976, according to lists published by Douglas V. Austin [1]-[4]. Most were not opposed overtly by the target firms' management, but in 21 cases, the tender offer went through despite incumbent management opposition, and in 13 other cases, the acquirer was a "white knight"

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2. For an early example, see [5].

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favored by target management over a "hostile" tender offer from some other company.[3] The median year of consummation was 1969, if all of the acquisitions are included, or 1968, if a 1974 terminal date is imposed, as we shall do in most of what follows.

III. Pre-Offer Performance

For 77 of the targets, it was possible to obtain information on profitability for at least two years prior to, or at most partially overlapping, the precipitating tender offer announcement. Consistent with the post-tender analysis that follows in Section IV, the profitability statistic used, OPINC:A, is the ratio of operating income (before deduction of interest charges, extraordinary items, and income taxes) to end-of-fiscal year assets. Because profit rates are sensitive to the business cycle and have drifted upward over time, each pre-tender operating income / assets ratio was divided by the ratio of OPINC:A for all manufacturing corporations in the relevant year to all manufacturers' OPINC:A for the years 1974-77.[4] After this adjustment, an operating income / assets ratio of 12.50 percent means that the target corporation's performance was identical to that of its all-manufacturing peers, regardless of the year analyzed.

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3. These classifications were made on the basis of information compiled by Austin [1]-[4], supplemented and sometimes amended by research in Wall Street Journal accounts.

4. The source was [13]. A few negative ratios were multiplied by the adjustment factor.

Averaging over the two pre-tender offer years, the simple average profitability ratios for the 77 targets and subsets thereof were as follows:

All 77 tender offer targets	12.04%
21 companies taken over by acquirers incumbent management opposed	11.93%
13 companies acquired by "white knights"	12.79
43 companies acquired in other tender offer situations	11.87

For all targets together, average pre-tender profitability was below the all-manufacturing benchmark, although insignificantly so (t = 0.69). Among the three classes of targets, the differences are small and statistically insignificant [F(2,151) = 0.13]. This nearly average pre-merger performance of target companies is difficult to reconcile with the supposition that targets are on average poorly-managed relative to the universe (in our analysis, all manufacturing corporations) from which they were selected for takeover.

Breaking down the data by years, one finds that target company profitability averaged 11.88 percent the year before (or in some cases, overlapping) the precipitating tender offer announcement and 12.21 percent in the preceding year. The difference between years is not statistically significant [F(1,152) = 0.06].

IV. Post-Tender Performance

The sample upon which our analysis focuses consists of 2,732 manufacturing lines of business (LBs) for which data satisfying quality control criteria over the three years 1975-77 were satisfied. Among

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those lines, 119 had a tender offer acquisition history, including 32 LBs

impacted by "hostile" offers unsuccessfully opposed by incumbent

management and 28 LBs acquired by "white knights." Those lines came from

51 tender offer target companies. Twenty-six tender offer acquisition

companies for which pre-merger profitability data were available (plus

five others) were excluded from the main analysis because the acquired

lines were sold off before 1975, because the tender offer acquisitions

occurred only in 1975 or 1976, or because data quality criteria were not

satisfied.[5] The two-year average pre-acquisition profitability of the

various included and excluded company cohorts was as follows:

	Operating Income / Assets
51 companies included in the three-year analysis	11.35%
11 companies acquired in 1975 or 1976	12.44
4 companies whose lines were sold off before 1975	11.70
11 companies failing to meet quality control criteria	14.95

The profitability differences among groups are not statistically

significant; $F(3,150) = 1.16$, with the 5% point being 2.67.

The principal dependent variable OPINC:A used in our analysis of

post-acquisition performance is the operating income / assets ratio for

an individual line of business (LB), expressed in percentage terms, and

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5. Lines were excluded when they had extensive acquisition or sell-off activity in one or more of the years 1975-77 (which can cause estimation biases); when the company merger histories were incomplete, precluding an accurate assignment of mergers to LBs; and when the acquired assets were reported only in a miscellaneous (99.99) manufacturing category. For methodological details, see Ravenscraft and Scherer [10].

averaged across the three reporing years 1975-77. Inter-industry

differences in profitability are taken into account by means of a "fixed

effects" regression analysis. That is, each of the 257 four-digit

manufacturing industry categories with LB observations was allowed to

have its own profitability regression intercept term. Also controlled

for are the following variables, each measured at the individual LB

level:

SHR Market share of LB in its four-digit industry
    category (scaled in ratio form).

POOL Fraction of end-of-period assets traced to acquisitions
    treated under pooling-of-interests accounting.

PURCH Fraction of end-of-period assets traced to acquisitions
    treated under purchase accounting.

EQUALS Dummy variable with value of 1 if the line had a "merger
    of equals," defined as a pooling merger among firms
    whose pre-merger size differed by no more than a
    factor of two.

NEW Dummy variable with value of 1 if the line entered the
    parent company's operations after 1950 and experienced
    no acquisitions.

The POOL and PURCH variables take into account not only the fraction of

assets acquired, but also the type of accounting used in transfering the

acquired assets to the acquirer's books. Under pooling of interests

accounting, assets are recorded at their pre-merger book value. Under

purchase accounting, assets are recorded in effect at the price actually

paid, usually with a premium over pre-merger book value. Details on

these measurements and other methodological matters are presented in

Ravenscraft and Scherer [9] [10, Chapter 6].

  Holding those other variables constant, the influence of a tender

offer history is ascertained by means of a dummy variable TENDER, with

unit value if the line resulted in whole or in part from a tender offer

acquisition and zero otherwise. Alternatively, a more detailed breakdown

is achieved by forming three distinct tender offer dummies:

HOSTILE   Acquisition actively opposed by target management.

WHITE   Acquirer was a white knight.

OTHER   Tender offer meeting neither of the above conditions.

Averaging the data for all lines meeting quality control criteria

for the years 1975-77, the following regressions, with t-ratios in

subscripted parentheses, resulted:

(1)   OPINC:A(75-77) = [257 constants] − 2.94 TENDER + 30.48 SHR
$$(2.06) \qquad\qquad (5.73)$$

   + 0.66 POOL − 3.08 PURCH + 0.83 NEW + 1.47 EQUALS;
   (0.58)   (2.49)   (0.82)   (1.52)

   $R^2 = 0.1818$, N = 2,732, mean OPINC:A = 13.34.

(2)   OPINC:A(75-77) = [257 constants] − 2.81 HOSTILE − 2.60 OTHER
$$(1.06) \qquad\qquad (1.34)$$

   − 3.76 WHITE + 30.43 SHR + 0.67 POOL − 3.08 PURCH
   (1.36)   (5.72)   (0.58)   (2.48)

   + 0.83 NEW + 1.49 EQUALS; $R^2 = 0.1818$, N = 2,732.
   (0.82)   (1.54)

With all tender offer types combined in regression (1), the

coefficient on TENDER is negative and statistically significant.[6]

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6. When the analog of regression (1) was run for individual years
using as many observations as met the quality control criteria for the
year, TENDER was negative in every case, but significant only for 1977,
which had the largest number of usable observations.

Breaking the tender offer set into three subsets (regression (2))
contributes no incremental variance explanation. The three coefficients
cluster in the same general size range, but none passes a 5 %
significance test owing to the relatively small number of LBs per
subset.[7]

The TENDER coefficient value of equation (1) indicates that lines
with a tender offer history were 2.94 percentage points less profitable
on average than lines without such a history, but with similar industry
membership, market share, and levels of (non-tender) acquired assets.
Relative to the all-sample average of 13.34 percent, this is a sub-
stantial difference. In conjunction with our earlier finding that the
51 tender offer targets included in the three-year analysis had average
pre-merger profitability of 11.35 percent, or 1.15 percentage points (and
insignificantly) lower than that of their manufacturing sector peers, the
- 2.94 point TENDER coefficient is inconsistent with the hypothesis that
post-tender acquisition profitability improved. Indeed, the implication
is even more severe. Seventy-eight percent of the tender offer
acquistitions were treated under purchase accounting or "dirty pooling"
(a blend of purchase and pooling accounting). To find the full impact on
profitability of an acquisition that stemmed from tender offer and which
contributed 100 percent of a line's assets under purchase accounting
(PURCH = 1.0), one must add the -2.94 TENDER coefficient and the -3.08

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7. When individual year regressions are run, there are two
depaprtures among the nine cases to the pattern of negative signs -- for
OTHER in 1975 and WHITE in 1977. Neither was statistically significant.

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PURCH coefficient. Together, the coefficients imply a 6.02 point

degradation of returns. For a line with an average market share in an

industry of average profitability, this means a drop from the all-sample

average return of 13.34 percent to approximately 7.32 percent.[9]

One reason for the depressed post-acquisition returns of tender

offer mergers might be the characteristically high takeover premiums

paid. Under the purchase accounting adopted following most tender offer

acquisitions, acquired assets were written up to reflect the value of

premiums paid over pre-acquisition book values. Such writeups increase

the denominator of OPINC:A, and hence reduce the ratio. They may also

affect the numerator by increasing depreciation charges, but this is less

certain, since asset writeups charged to a goodwill account were seldom

amortized before 1970 and were subjected to long (e.g., 40 year)

amortization periods thereafter.

To test for the role of asset writeups, equation (1) was re-

estimated with a dependent variable measured as the ratio of operating

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8. Other coefficients in regression (1) are interpreted as follows.
Moving from having an infinitessimal market share to controlling the
whole market (SHR = 1) raises the operating income / assets percentage by
an impressive 30.5 percentage points. Lines originating under pooling of
interests mergers were slightly, but insignificantly, more profitable
than their no-merger counterparts. Mergers of equals were 1.47
percentage points more profitable on average; new internal growth lines
0.83 points more profitable.

9. The mean 1975-77 operating income / assets value for the 119
tender offer lines was 9.90 percent, which is below both the all-
sample average and the pre-merger target firm average of 11.35 percent.
This 1975-77 average differs from the value predicted by regression
analysis because only the latter controls for industry, market share, and
accounting choice influences.

income to sales, which avoids the denominator inflation effect. The result was:

(3)   OPINC:S(75-77) = [257 constants] - 0.74 TENDER + 21.98 SHR
                                             (0.87)   (6.89)

          + 0.46 POOL - 0.99 PURCH + 0.86 EQUALS - 0.08 NEW;
           (0.67)   (1.33)   (1.49)   (0.14)
           2
          R = 0.2123, N = 2,732, mean OPINC:S = 7.54.

Here the tender offer effect is statistically insignificant and indicates an average deviation from all-sample operating income / sales ratios of only 9.8 percent, compared to the 22.0 percent deviation in assets-based regression (1). Evidently, a substantial component of the post-acquisition depression of tender offer line profitability came from the asset writeups resulting from the premiums over book value paid in effectuating a takeover.

To purge the effect of such writeups from the numerator of profitability measures, a third variable, the ratio of cash flow (i.e., operating income before deduction of depreciation) to sales, was computed. With it as dependent variable, the result is:

(4)   CASHFLO:S(75-77) = [257 constants] - 0.47 TENDER + 23.16 SHR
                                              (0.55)   (7.30)

          + 0.43 POOL - 1.11 PURCH + 0.15 NEW + 0.72 EQUALS;
           (0.63)   (1.51)   (0.25)   (1.26)
           2
          R   = 0.2388; N = 2,732; mean CASHFLO:S = 10.12.

Now the tender offer coefficient and its t-ratio fade even more, suggesting the presence of some depreciation effect in regression (3). Since for the full sample the cash flow / sales ratios averaged 76

percent of the operating income / assets ratios, the - 0.47 TENDER coefficient in regression (4) is roughly equivalent to a - 0.62 operating income / assets effect.

It is generally believed that the Williams Act increased takeover premiums. If so, we should expect the negative effect of TENDER on OPINC:A to be greater for post-1968 takeovers than for those carried out before the Act took force. Seventy-three of the 119 tender offer lines came from acquisitions commenced (at least by the successful bidder) after most Williams Act provisions became effective July 29, 1968. When TENDER is multiplied by a dummy variable with a value of 1 for post-Williams Act cases, the resulting regression is:

(5) OPINC:A(75-77) = [257 constants] - 2.84 TENDER - 0.17 WILLIAMS
                                            (1.30)   (0.06)

     + 30.48 SHR + 0.66 POOL - 3.07 PURCH + 0.83 NEW + 1.47 EQUALS;
       (5.73)   (0.58)   (2.48)   (0.82)   (1.52)
     R^2 = 0.1818, N = 2,732.

There is a hint of even more negative profitability effects for post-Williams Act acquisitions, although neither tender offer coefficient is statistically significant. The basic TENDER coefficient fades to insignificance (with little change in its value) because of a 53 percent increase in its standard error relative to equation (1).

V. Conclusion

Tender offer targets of the 1960s and early 1970s entered their acquirers' organizations with a profit record nearly equal to that of all manufacturers. Eight years later on average, they performed significantly less well. An important reason for their sub-par post-

acquisition returns was the inflation of asset values stemming from the payment of acquisition premiums. But those premiums were supposedly paid in anticipation of enhanced profitability, which, our post-takeover operating income regressions indicate, did not materialize. This is an anomaly for the theory of takeovers as an efficiency-increasing mechanism. If improvements did occur, their impact must have been concentrated not on operating returns, but below the "bottom line" of our operating income measures -- e.g., in income taxes or interest costs. Tax savings are a zero-sum game against the Treasury. Since there are clear and persistent economies of scale in financing,[10] interest cost savings may have been overlooked by our analysis. Yet they can scarcely have been large enough to justify the low average pre-interest returns on assets revealed by regressions (1) and (2), nor is tender offer takeover the only way to secure them.

At the very least, in view of the intense tender offer wave occuring during the 1980s, these results show a critical need for direct and affirmative evidence on whence the purported economic benefits of takeovers originate and whether tenderers have in fact succeeded in managing their acquistions better than the displaced managers. Absent such evidence, the hypothesis that tender offer acquisitions are on average efficiency-increasing warrants much more skepticism than it has received thus far in the literatures of economics, corporate finance, and securities law.

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10. See Scherer et al. [11, pp. 284-288], where a tenfold increase in company size was found to reduce interest rates by 0.46 percentage points during the mid-1960s.

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