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An Analysis of Divestiture Effects Resulting from Deregulation

ANDREW H. CHEN and LARRY J. MERVILLE*

ABSTRACT

Capital market data were used to examine the divestiture effects pertaining to deregulation, the dropping of antitrust charges, and the reversing of the co-insurance effect associated with the recent breakup of AT&T. The empirical results of the study indicate that significant economic events took place during the breakup process, which led to transfers of wealth from various parties to the securityholders of AT&T. The results also indicate that the buffering effect of regulation was reduced as AT&T went through the total deregulation process. This is in accordance with Peltzman's prediction.

THE FOCUS OF THIS research is an involuntary breakup (split-up or "total" divestiture) of a major corporation in the economy, AT&T. The breakup of AT&T (occurring on January 1, 1984) provides an excellent opportunity to study both merger and acquisition theory in reverse, as well as to analyze the impact of significant deregulation on a large corporation in the economy.

While several firms have involuntarily divested themselves of a division or subsidiary over the recent past, the size of the divestiture is usually not significant enough to be observed in the returns to bondholders, stockholders, and third parties. The recent large-scale breakup of AT&T by court order occurred over a fairly long time period (approximately two years), which makes it possible to examine the effects of certain specific subevents with respect to the wealth transfer among the claimants of the firm. It is also possible to draw some conclusions about the effects of deregulation on corporate investors in general by examining the returns behavior over the extended split-up period. Capital market data were used to examine the divestiture effects pertaining to the breakup of AT&T.

Many theoretical and empirical studies have analyzed the impact of mergers and acquisitions on the wealth of corporate investors. On the theoretical side, single-period cash-flow models preserving limited liability have been developed by Baron [2], Chen [7], Higgins and Schall [11], and Brennan [5]. On the empirical side, work by Mandelker [15], Langetieg [14], and Asquith [1] has investigated the effect of mergers on target and bidder stockholder returns. The results of these studies warrant the following general conclusions: (a) some of the wealth of premerger stockholders may be transferred to the bondholders of

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the postmerger firm; (b) some of the wealth of premerger bondholders may be transferred to postmerger third parties (consumers, workers, etc.); (c) stockholder returns for target firms (whether a successful or an unsuccessful merger) are abnormally positive during the event announcement date; and (d) most of the gains from a merger go to the stockholders of the target firms' with the bidding firms' shareholders receiving little, if any, return.

The reverse of merger action in the capital markets includes voluntary and involuntary divestitures. The number of studies investigating these effects is more limited. Work by Boudreaux [3] indicates that voluntary divestitures were coincident with significant abnormal returns in the common stock of the divesting firm prior to the event announcement date. However, involuntary divestitures had significant negative abnormal performance results. Miles and Rosenfeld [16] observe positive abnormal returns to divesting shareholders around the divestiture announcement date in the case of large voluntary spinoffs and also observe that the relative increase in share price is greater for large spinoffs than for small ones. More recently, Hite and Owers [12] have found positive gains for firms engaging in voluntary spinoffs to facilitate mergers or to separate diverse operating units. They found negative returns to firms responding to involuntary legal and regulatory difficulties. Most of the divestitures in these studies were small relative to the remaining company, generally being less than 10 percent of total asset value.

I. The Testable Hypotheses for Stockholders

Since the breakup of AT&T is more than a simple involuntary divestiture, it is necessary to re-examine theoretical findings in order to predict the effects on returns to securityholders resulting from actions or events during the breakup period. Table I lists major announcements and occurrences pertaining to the entire breakup process from 1982–84. The goal in this part of the research is to determine both the type of event with which each announcement is associated and its impact on the wealth of all the shareholders of AT&T. Associated with each event is one of two possible hypothesis categories. Category 1 (C1) relates to information pertaining to the transfer of wealth from all sources to AT&T stockholders. Category 2 (C2) relates to information concerned with the transfer of wealth from all sources, but primarily from third parties (consumers, labor, government, etc.) to operating company stockholders.

During the entire breakup period, one should expect to encounter a variety of event types. One type of event can be viewed as related to the reversal of the co-insurance effect. The co-insurance effect states that, as a general rule, all bondholders become relatively better off when two companies merge because each separate set of bondholders can now rely on the cash flows of the other company to help reduce the riskiness of their cash flows. The reverse of this effect should occur when a company is split into separate pieces. *Ceteris paribus*, debt should become riskier and shares should become more valuable. That is, the reverse of a co-insurance event announcement possesses a set of signals that are simultaneously sent to all of the security investors of AT&T. Such events contain

Table I

A Chronology of Events Since AT&T and U.S. Reached Accord on Breakup^a

<u>1982</u>	
1. Jan 8	Justice Department and AT&T sign 19-page accord to drop government's 1974 antitrust charges and to scrap a 1956 antitrust settlement that bars AT&T from engaging in unregulated businesses. In return, AT&T agrees to spin off its 22 local Bell companies. Federal Judge Harold H. Greene, presiding at the antitrust trial, begins review of settlement. (C1) ^b
2. Feb 19	AT&T says local Bell units will be grouped into seven regional holding companies of roughly equal size. (C1)
3. Aug 11	Judge Greene approves most of breakup agreement but demands changes, including giving Bell units rights to publish Yellow Pages and sell telephone equipment. AT&T also would be banned from originating electronic information carried on its facilities. (C2) ^c
4. Aug 19	Justice Department and AT&T agree to judge's changes although Justice Department asks that Bell units be permitted only to sell basic telephones. (C2)
5. Aug 24	Judge Greene rejects Justice Department's request and formally approves antitrust settlement. AT&T has until Feb 24, 1983, to submit detailed divestiture plan and then has a year, until Feb 24, 1984, to carry it out. (C1)
6. Oct 4	AT&T files maps showing 161 calling areas nationwide. Most calls within each area will be handled by the local phone company; calls between areas will be carried by AT&T and other long-distance carriers. (C2)
<u>1983</u>	
7. Mar 10	Moody's Investors Service, Inc., cuts its debt ratings for AT&T and almost all Bell units, citing increased credit risks after breakup. (C1)
8. Mar 24	Second major rating agency, Standard & Poor's Corporation, downgrades debt of a few Bell units but leaves all ratings higher than Moody's. (C1)
9. Apr 20	Judge Greene approves boundaries for most of AT&T's proposed 161 calling areas nationwide. (C1)
10. Aug 3	AT&T bows to loss of Bell name and says it will call itself the "new" AT&T. Judge Greene approves divestiture plan, clearing way for the breakup. (C1)
11. Oct 7	AT&T says Internal Revenue Service ruling will make the distribution of stock in the new regional companies 99% tax free to shareholders. (C2)
12. Oct 19	AT&T says it will reduce year-end earnings by \$5.2 billion to prepare for 1984 operations as competitive company. AT&T also begins offering early retirement plans for as many as 13,000 workers. (C1)
13. Nov 16	AT&T provides financial data to Securities and Exchange Commission for the start of trading in the stocks of the seven Bell regional companies. (C1)
<u>1984</u>	
14. Jan 3	AT&T is officially split, with new stocks traded on NYSE. (C2)
15. Jan-Feb	New operating companies apply for rate relief. (C2)

^a All of the announcements appeared in the *Wall Street Journal* on the date indicated.

^b C1 pertains to information relating to wealth transfers to AT&T shareholders.

^c C2 pertains to information relating to wealth transfers from third parties to operating company shareholders.

information pertaining to (a) the deregulation process, (b) the dropping of antitrust charges, and (c) the reversal of the co-insurance effect.

Modern contingent-claims analysis provides a clearer explanation of this. The option-pricing model indicates that the equity of a levered firm is equivalent to a call option on the firm. Thus, when two companies merge, the merger will reduce the volatility of the merged firm, and, hence, the value of equity falls and the value of the bond increases, as demonstrated by Galai and Masulis [9].

As the deregulation process proceeds, the equityholders may begin to change their probability estimates of future returns on the common stock. Of course, the higher (lower) future returns should also entail higher (lower) future expected risks.

During the AT&T breakup period, one should theoretically expect to find wealth transfers from bondholders to stockholders (the reverse of the co-insurance effect) because the income stream was to have been allocated among seven operating companies (NYNEX Corporation, Pacific Telesis Group, Southwestern Bell Corporation, U.S. West, Inc., Bell Atlantic Corporation, Bell South, and American Information Technologies Corporation) and the parent company, AT&T. The bondholders of the individual companies, which aggregate to the bondholders of the prebreakup AT&T Company, should have seen their cash flow coverage protection decline across the interim breakup period. In fact, the debt rating of AT&T by Moody's did decline from Aaa in 1982 to Aa1 in 1983. However, the debt of AT&T and the debt of the regional companies not guaranteed by AT&T were rated either the same or within one grade of one another during this period. The lowering of bondholder protection should lead to transfers of wealth from the existing bondholders to the stockholders. However, in the breakup of a regulated company, it is also possible that bondholders may recoup some or all of their losses to stockholders from third parties (consumers) through current or future rate hearings before their respective regulatory bodies.

Announcement events containing a preponderance of information signals pertaining to the deregulation process, the dropping of antitrust charges, and the reversing of the co-insurance effect should have led to positive abnormal returns in the stock of the AT&T shareholders. Thus, hypothesis number one is

H1: During the breakup period, announcements pertaining to the deregulation process, the dropping of antitrust charges, and the lowering of bondholder protection led to positive abnormal returns in the common stock of AT&T.

Since the large-scale breakup of a company is the reverse of a large-scale merger of two companies, it is interesting to speculate as to what effects the breakup would have on different sets of the stockholders. After the breakup, each operating company was to have had its own shares of common stock, initially owned by the old shareholders on a pro rata basis.

Over time, the event announcements pertaining to the breakup of AT&T made it increasingly clear that the operating companies would assume the role of regulated utilities, while the postbreakup AT&T Company would be allowed to pursue new investment opportunities almost unfettered by regulation. In addition, the new AT&T Company seemed to be allowed the chance to define its own

capital structure by dictating the structure of the newly formed operating companies during the divestiture period.

Since the operating companies and the new AT&T were expected to be profitable in their new forms, little, if any, transfers of wealth from government to AT&T shareholders due to tax effects should have occurred. Due to regulatory control and bondholder resistance, we believe that little, if any, wealth transfers took place between debtholders and operating company shareholders. However, third-party effects may have occurred within the operating companies. One reason for an expected reduction in stock returns to the operating companies compared to the new AT&T was that the long-distance rates charged by the new AT&T would no longer be available to subsidize the rates charged to local subscribers. During and after the breakup, the new operating company shareholders could also achieve positive abnormal returns by convincing regulators that their local telephone rates and local access charges were too low. Thus, a wealth transfer from consumers (third parties) to operating company shareholders could have more than offset any value lost to the new AT&T shareholders. By all accounts, the postbreakup regulatory environment seemed to have been conducive to increased telephone rates for the operating companies.

Therefore, the second hypothesis to be tested is

H2: During the breakup process, the shareholders of the operating companies achieved positive abnormal returns across events associated with actual or proposed regulatory hearings.

In the case of the breakup of AT&T, multiple events occurred from 1982–84. In Table I, we list fifteen such events that potentially possess significant economic information. We then test for their individual significances. Strictly speaking, each event requires a separate hypothesis. However, we choose to group the events under two hypothesis categories, C1 or C2, with the implication being that, if one or more events under a given category is significant, then the broader hypothesis, H1 or H2 respectively, is supported. If none of the events under a given category is significant, then we reject the associated hypothesis.

II. Methodology

Over the past several years, many event studies have been performed in economics and finance. Some studies use monthly data; others rely on daily data. In a recent paper by Brown and Warner [6], a set of tests was made on four types of excess return measures using daily data. The four measures are:

1. raw returns (the security's observed return on day t);
2. mean-adjusted returns (the security's observed return on day t minus the average of the security's daily returns averaged over a previous estimation period);
3. market-adjusted returns (the security's observed return on day t minus the return on the CRSP equally weighted index for day t); and
4. market-model residuals (the security's return on day t minus the return on the ordinary-least-squares regression model for day t).

The purpose of their tests is to determine which measure of excess returns, if any, dominated when considering problems of non-normality of stock return data, nonsynchronous trading and systematic risk measures, and the estimation of variance of mean excess returns for statistical testing purposes.

The major conclusions of the Brown and Warner [6] paper relevant to this study are:

1. The non-normality of daily returns had no obvious impact on the event-study methodologies;
2. Procedures other than OLS for estimating systematic risk in the presence of nonsynchronous trading conveyed no clear-cut benefits; and
3. For the choice of the variance estimator to be used in the hypothesis tests for periods as short as ten days, there was evidence that the specification of the test statistic was improved by using simple procedures to adjust the estimated variance to reflect autocorrelation in the time series of daily excess returns.

A. Excess Return and Significance Measures

We took five trading days before and five trading days after each event to measure the abnormal financial performance of the securities. The daily excess returns were measured by the mean-adjusted-returns approach; that is, for each day of the eleven-day event period $(-5, 0, +5)$, we measured

$$A_{j,t} = R_{j,t} - \bar{R}_j, \quad (1)$$

where

$A_{j,t}$ = mean excess return associated with the j th event for day t ;

$R_{j,t}$ = the daily return associated with the j th event for day t ;

and

$\bar{R}_j$ = the average of the daily returns in the estimation period $(-25, -6)$ prior to the j th event.

For statistical testing purposes, we also calculated the ratio of the cumulative excess returns (CER) to its estimated standard deviation for each event j . The Z_j statistic is assumed to be unit normal and is given by

$$Z_j = \frac{\sum_{t=-5}^{+5} A_{j,t}}{(\sum_{t=-5}^{+5} S^2(A_{j,t}))^{1/2}}, \quad (2)$$

where $S(A_{j,t})$ is the estimated standard deviation for day t associated with event j , adjusted for using the predictive distribution of excess returns:¹

$$S(A_{j,t}) = \left[\frac{1}{20} + 1 \right] \cdot \left[\frac{\sum_{t=-25}^{-6} (A_{j,t} - \bar{A}_j)^2}{20} \right]^{1/2} \quad (3)$$

¹ See Brown and Warner [6] for the adjustment for the estimated standard deviation. With an eleven-day event period, there is only one case of serious event overlap (between events 4 and 5), but it is not critical since these two events pertain to different hypothesis categories.

and

$$\bar{A}_j = 1/20 \sum_{t=-25}^{-6} (R_{j,t} - \bar{R}_j) = 0. \quad (4)$$

If $S(A_{j,t})$ is assumed to be the same ($S(A_j)$) for all t in the very short period $(-5, +5)$, then the Z_j statistic reduces to²

$$Z_j = \frac{\sum_{t=-5}^{+5} A_{j,t}}{S(A_j) \sqrt{11}}, \quad (5)$$

where $S(A_j)$ is calculated by equation (3).

B. Grouping and Testing of Events

Using the methodology described in the previous section, ten trading days were selected around each event to determine the event's significance to wealth transfers. The significance of the events in categories C1 and C2 are related to hypotheses H1 and H2, respectively, which are described in Section I above.

III. Test Results and Analysis

Tables II and III summarize the results of running daily excess-returns tests on events one through fifteen of Table I. In the AT&T positive wealth effect category (C1), events five, nine, and ten showed positive abnormal returns, which are significant at the 0.05 level, thus supporting the acceptance of H1. Also, event thirteen is significant at the 0.10 level. These results contrast with those of the much smaller involuntary divestitures found in Boudreaux [3] and Hite and Owers [12]. In the previous cases, the small involuntary divestitures signaled the difficulties that the firms were facing, while, in the AT&T case, the breakup meant a substantial saving of dead-weight losses from the dropping of antitrust charges and a significant impact of deregulation on a large corporation in the economy.

In category C2 (wealth transfers from third parties to operating company stockholders), positive abnormal returns are significant at the 0.05 level for events four, six, and fourteen. The total number of significant positive events seems to sustain the credence of H2.

Event fifteen relates to the filings that were made by the operating companies in the postbreakup period (1/3/84–2/1/84) or to the announced or anticipated filings that were to be made by the operating companies after 2/1/84. The results of Table III indicate that four of the seven operating companies had significant positive abnormal returns during the first month after the breakup became official. Only NYNEX Corporation exhibited totally insignificant positive stock returns during this period.

² Security returns are realistically described as homoscedastic over short periods. (See Brown and Warner [6].)

Table II
Event Date Test Results (1/1/82–1/1/84)

Table I Category	Event Number	Standard Error of Forecast	Cumulative Excess Return (–5, +5)	Z-Statistic of CER
C1(+) ^a	1 (1/8/82) ^{***}	0.00655 ^b	0.00300	0.13798
C1(+)	2 (2/19/82)	0.00806	–0.01310	–0.48976
C2(+) ^c	3 (8/11/82)	0.01209	0.04190	1.04451
C2(+)	4 (8/19/82)	0.00837	0.16420	5.91530 ^{**}
C1(+)	5 (8/24/82)	0.01133	0.10850	2.88848 ^{**}
C2(+)	6 (10/4/82)	0.01318	0.10450	2.39106 ^{**}
C1(+)	7 (3/10/83)	0.01275	0.00130	0.03074
C1(–)	8 (3/24/83)	0.01194	–0.02270	–0.57318
C1(+)	9 (4/20/83)	0.00885	0.05800	1.97510 ^{**}
C1(+)	10 (8/3/83)	0.00964	0.08670	2.71253 ^{**}
C2(+)	11 (10/7/83)	0.01015	–0.03600	–0.10691
C1(–)	12 (10/19/83)	0.01010	–0.04210	–1.25680
C1(+)	13 (11/16/83)	0.01019	0.05950	1.76054 [*]
C2(+)	14 (1/3/84)	0.00819	0.06470	2.38287 ^{**}

^a C1(·) pertains to information relating to wealth transfers to AT&T stockholders, with anticipated positive (+) or negative (–) effect on returns.

^b All numbers are in decimal form.

^c C2(·) pertains to information relating to wealth transfers from third parties to operating stockholders, with anticipated positive (+) or negative (–) effect on returns.

* Significant at 0.10 level.

** Significant at 0.05 level.

*** To determine whether there was any information available prior to 1/8/82, we took the date 1/1/82 as an event date and ran our test from day 10 to 1/1/82. We found no significant information in this event date.

Table III
Postbreakup Period (Event 15) Test Results
(1/3/84–2/1/84)

Company Name	Standard Error of Forecast	Z-Statistic of CER (0, +20)
1. AMRTC	0.0123	1.1319
2. BELLAT	0.0101	3.1811 ^{**}
3. BELLSO	0.0108	4.1303 ^{**}
4. NYNX	0.0108	0.1916
5. PCTEL	0.0113	0.7698
6. SWBELL	0.0100	1.8291 [*]
7. USWST	0.0126	2.6638 ^{**}
8. AT&T	0.0087	3.2288 ^{**}
9. AT&T (when issued)	0.0149	1.7503 [*]

* Significant at 0.10 level.

** Significant at 0.05 level.

IV. Tests of the Buffering and Co-Insurance Effects

A set of additional tests was made with respect to the economic theory of regulation as developed by Stigler [18] and Peltzman [17]. In particular, Peltzman hypothesizes that regulation reduces the riskiness of a utility in its demand and cost uncertainty. This "buffering effect" hypothesis should be reversed in the case of AT&T between the prebreakup and postbreakup periods. If Peltzman's hypothesis is correct, then we should expect the systematic risk of AT&T stock to increase during the breakup period.

To test the Peltzman "buffering effect" hypothesis, the following three broad periods were used:

1. pre-antitrust period (1966–73);
2. antitrust-trial period (1974–81); and
3. deregulation period (1/1/81–8/1/84), with the following three subperiods:
 - a. prebreakup period (1/1/81–1/1/82);
 - b. breakup period (1/1/82–1/1/84); and
 - c. postbreakup period (1/1/84–8/1/84).

Within each period or subperiod, we computed the systematic risk of AT&T common stock. For the first two broad periods, 1966–73 and 1974–81, we estimated the systematic risk of AT&T by using Ibbotson and Sinquefeld's [13] monthly data on the total returns to common stocks as our measure of the market returns. In order to test for changes in the buffering effects during the deregulation period (1/1/81–8/1/84), we decided to use weekly data to estimate the betas of AT&T for each subperiod. Since Ibbotson and Sinquefeld's data are not available on a weekly basis, we chose the S&P 500 Index as our measure of market returns. Monthly and weekly returns on AT&T stock were calculated from the CRSP daily tapes for the period 1966–84.

The results of this test are displayed in Panel A of Table IV. It is seen that the systematic risk of AT&T declined from the first period (1966–73) to the second period (1974–81). This result is consistent with Peltzman's hypothesis in that, starting in 1974, the market perceived that AT&T was going to be more tightly regulated as evidenced by the antitrust suit filed by the Federal Government in 1974. The three subperiods of 1981–84 show a reversal of the buffering effect since the beta increased from 0.317 in 1981 to 0.539 over the two-year subperiod 1982–84. It was in January 1982 that the Justice Department and AT&T signed a nineteen-page accord to drop the 1974 antitrust charges, which effectively reversed the Peltzman "buffering effect."

To see more clearly the effects of the 1974 antitrust suit on the stock performance, we analyzed monthly stock returns over the period 1973–81. In particular, using Ibbotson and Sinquefeld's data, we computed the monthly market-model residuals (alpha) for each month of each year of the period and tested for annual significance. These results are shown in Panel B of Table IV. It is seen that the average annual alphas are relatively low in magnitude and statistically insignificant across the entire period. There was no evidence indicating particular market reaction around the antitrust year of 1974. Thus, we conclude that the positive abnormal returns on AT&T stock observed in the 1981–84 period are not the

Table IV
Additional Tests on AT&T Common Stock: 1966-84

A. Test of Peltzman's "Buffering Effect" Hypothesis: Results											
Period		Alpha (<i>t</i> -Statistic)		Beta (<i>t</i> -Statistic)							
(1)	1966-73	-0.00709 (0.1945)		0.688* (7.33)							
(2)	1974-81	0.00236 (0.6845)		0.329* (4.86)							
(3)	1981-84										
	1/1/81-1/1/82	0.0054* (1.999)		0.317 (2.423)							
	1/1/82-1/1/84	0.0006 (0.268)		0.539* (6.094)							
	1/1/84-8/1/84	-0.0015 (-0.212)		0.021 (0.062)							

B. Stock Performance for 1973-81: Alphas by Month											
Month	1973	1974	1975	1976	1977	1978	1979	1980	1981		
1	0.002279	0.003574	0.041663	0.038366	0.011754	-0.027006	0.016069	-0.059059	0.096255		
2	-0.035395	0.050477	0.031068	0.030546	0.023148	0.058821	0.002480	-0.004506	0.004677		
3	0.014569	-0.044322	-0.030418	0.000013	-0.012369	0.008171	-0.028481	0.011772	-0.025477		
4	0.031726	-0.045347	-0.029346	0.022573	0.000972	-0.007836	-0.047528	0.059662	0.070182		
5	0.002601	-0.006210	0.005316	-0.035570	0.065668	-0.021455	0.002190	0.014028	0.064629		
6	-0.001744	0.013827	0.014998	0.014989	-0.012414	-0.013001	-0.010246	-0.030245	-0.034485		
7	-0.034367	-0.076155	-0.018330	0.014585	-0.009641	-0.022231	-0.019556	-0.030618	-0.004099		
8	-0.035035	0.052382	-0.037244	0.045964	-0.019679	0.016759	-0.014401	0.036839	0.013685		
9	0.076524	-0.002109	-0.000838	0.003671	0.044739	0.022170	-0.035086	-0.042398	0.053407		
10	-0.071770	0.069955	0.051518	0.024841	-0.050849	-0.007345	0.016002	-0.053463	-0.002550		
11	0.014210	-0.035325	0.029455	0.021247	-0.006299	0.015250	0.009266	-0.060155	-0.001131		
12	0.059015	0.032941	0.004892	0.005761	0.022733	-0.015022	-0.042931	0.006867	-0.007505		
Avg:	0.001884	0.001141	0.005228	0.015582	0.004814	0.000690	-0.015352	-0.012606	0.019391		
<i>t</i> -Stat:	0.019927	0.012062	0.55282	0.164775	0.050902	0.007291	-0.162343	-0.133307	0.205049		

Model: $\alpha_t = R_{ATT,t} - R_{i,t} - \beta_{ATT} R_{m,t} - R_{i,t} + \varepsilon_t$.
 $R_{ATT,t}$ = return on ATT common stock in time period t .
 $R_{m,t}$ = return on market index in time period t .
 $R_{i,t}$ = return on Treasury bill in time period t .
 $\beta_{ATT} = 0.329$.
 t -statistic = $\sum_{t=1}^{12} \alpha_t / \sqrt{12} \sigma(\varepsilon_{73-81})$.

* Significant at 0.05 level.

result of simply recouping some prior period's poor performance due to the antitrust suit brought against AT&T in 1974.

The empirical estimates of AT&T's systematic risk for the postbreakup period from 1/1/84 to 8/1/84 appear strange at best. The beta is low in magnitude and statistically insignificant. To further increase our understanding of the post-breakup period, we ran two more tests. The total risk relative ($\sigma_{ATT}^2/\sigma_{SP}^2$), where SP is Standard & Poor's 500 Index, was calculated for the three subperiods of 1981–84 along with the average daily trading volumes. These results are shown in Table V.

From Table V, it is apparent that, after the actual breakup or deregulation of AT&T, two effects occurred. First, the total riskiness of AT&T share prices relative to the market (S&P 500) almost tripled, with most of the risk being firm specific. This accounts for the near-zero beta for AT&T during this period in Table IV. Second, the average daily trading volume as a percentage of daily NYSE trading volume doubled from 1981–84. The trading frenzy in the post-breakup period resulted from investors attempting to determine what new businesses AT&T was going to go into as well as how risky these new businesses might be relative to its existing businesses. Thus, we conclude that Table V, in conjunction with the results from Table IV, reinforces the reverse Peltzman “buffering effect” hypothesis during the deregulation period.

A second set of additional tests was made with respect to the bondholders. In particular, we wanted to study the behavior of total returns on AT&T bonds with respect to total returns on corporate bonds in general. If the events of Table I leading to positive abnormal returns for AT&T stockholders came at the expense of bondholders (i.e., the reverse of the co-insurance effect), then negative abnormal returns should have accrued to bondholders in the form of a narrowing of the spread between total returns on AT&T bonds and total returns on corporate bonds in general. To test for this effect, we ran the following regression model over the period 1966–84:

$$R_{ATT,t} - R_{GOV,t} = \alpha_0 + \gamma_1[R_{CORP,t} - R_{GOV,t}] + u_t, \quad (6)$$

where

$R_{ATT,t}$ = total return on a representative AT&T bond at time t ;

Table V
Total Risk Relatives and Average Daily Trading Volumes for the Deregulation Subperiods of AT&T

Subperiod	Total Risk Relative ($\sigma_{ATT}^2/\sigma_{SP}^2$) ^a	Average Daily Trading Volume AT&T ÷ Average Daily Trading Volume NYSE (Shares in Thousands)
1/1/81–1/1/82	0.9549	405.1/53,690.5 = 0.0075
1/1/82–1/1/84	1.0846	926.8/87,820.0 = 0.0106
1/1/84–8/1/84	2.8361	1,712.2/107,618.1 = 0.0159

^a SP = Standard and Poor's 500 Index.

$R_{\text{GOV},t}$ = total return on long-term government bonds at time t ; and
 $R_{\text{CORP},t}$ = total return on long-term corporate bonds at time t .

In each of the broad periods, 1966–73, 1974–81, and 1981–84, we selected a representative AT&T bond that had at least fifteen years left to maturity. The returns $R_{\text{GOV},t}$ and $R_{\text{CORP},t}$ were taken from Ibbotson and Sinquefeld [13], with all returns calculated on a monthly basis.

The results of the additional bondholder tests are shown in Table VI. In Panel A are the results of running the regression model (6) over the three periods from 1966–84. It is seen that both the intercept (α_0) and slope coefficient (γ_1) terms are significant and not different in signs or magnitudes for the periods 1966–73 and 1974–81. These results would support the conclusion that AT&T bondholders experienced little or no change in the relative performance of their bonds against

Table VI
Additional Tests on AT&T Bonds: 1966–84

A. Tests of Bond Return Spread: 1966–84				
Period	α_0 (t -Statistic)	γ_1 (t -Statistic)		
1. 1966–73	–0.005265* (–2.6764)	0.775243* (6.4021)		
2. 1974–81	–0.007847* (–6.1875)	0.927583* (7.9768)		
3. 1981–84				
1/1/81–1/1/82	–0.009261 (–0.8802)	1.294647* (1.8366)		
1/1/82–1/1/84	–0.011131* (–2.5531)	1.219815* (3.2743)		
1/1/84–8/1/84	–0.010309* (–2.73)	–0.345225 (–0.71)		
Model: $R_{\text{ATT},t} - R_{\text{GOV},t} = \alpha_0 + \gamma_1[R_{\text{CORP},t} - R_{\text{GOV},t}] + u_t$.				
ATT-bond (1966–73): 3-7/8 Mat 1990.				
ATT-bond (1974–81): 8-3/4 Mat 2000.				
ATT-bond (1981–84): 8-3/4 Mat 2000.				
B. Bond Total Return Spreads [$R_{\text{ATT},t} - R_{\text{GOV},t}$] by Months: 1981–84				
Month	1981	1982	1983	1984
1	0.0043	–0.0012	0.0791	–0.0105
2	0.0428	–0.0012	–0.0606	–0.0155
3	–0.0856	0.0170	0.0421	–0.0168
4	0.0647	–0.0261	–0.0593	–0.0068
5	–0.0131	–0.0617	0.0146	–0.0001
6	–0.0357	0.0745	–0.0417	–0.0005
7	–0.0014	0.0228	0.0548	–0.0260
8	–0.0380	–0.0286	–0.0093	—
9	0.0580	0.0061	–0.0474	—
10	0.0403	–0.0204	0.0182	—
11	–0.2331	–0.0442	–0.0446	—
12	0.0519	–0.0561	0.0057	—
Avg:	–0.0121	–0.0099	–0.0040	–0.0109

* Significant at .05 level.

other corporate bonds in the marketplace from 1966–81. However, during the 1981–84 breakup period, the relationship between AT&T bonds and corporate bonds underwent some changes. In particular, the magnitudes of the intercept terms grew more negative, and the slope coefficients grew more positive, all with diminished levels of statistical significance. Further examination of the 1981–84 breakup period was carried out with respect to the bondholders of AT&T.

In Panel B is a monthly analysis of the spread between the total returns of AT&T and government bonds from 1981–84. The average monthly spread grows less negative from 1981–83 but reverses itself in the first eight months of 1984. Therefore, there is no evidence that indicates that AT&T bonds were becoming more risky during the breakup period. The long-term debt to total asset ratio for AT&T remained very stable from 1980–83 at around the 0.30 level. After the breakup, this ratio declined to 0.19 by the end of 1985. Thus, on balance, these events did not signal a set of net-wealth-transfer effects from bondholders to stockholders. The breakup of AT&T was not a zero-sum game between the stockholders and the bondholders.

One possible explanation for these results is that AT&T bondholders protected themselves during the deregulation process by transferring any increased risk brought on by the reversal of the co-insurance effect to third parties through divestiture hearings and the postbreakup rate hearings with the FCC on the long-distance portion of the new AT&T Company. Therefore, debtholders expected to and apparently did recoup any potential losses to stockholders from third parties between 1/1/81 and 8/1/84.

V. Summary

In this paper, we investigate the results of divestiture according to the theory in the case of AT&T. In particular, divestiture theory suggests that wealth transfers can take place among bondholders, stockholders, and third parties. Likewise, the reverse Peltzman utility “buffering effect” should indicate a general increased riskiness in the shares of AT&T across the deregulation period 1/1/81–8/1/84.

The results of our research indicate that economically significant events took place during the deregulation process, which led to transfers of wealth from third parties (consumers and government) to AT&T stockholders and bondholders and from third parties to operating company shareholders. Our results also indicate that the buffering effect of regulation was reduced as AT&T went through the total deregulation process, as Peltzman predicted. However, we could detect no transfers of wealth from bondholders to stockholders during the deregulation process.

On balance, existing theories of mergers and acquisitions satisfactorily explained the observed behavior of a major company undergoing the reverse process of growth through external acquisitions.

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