

## **Further Evidence on Excess Asset Reversions and Shareholder Wealth**

H. Fred Mittelstaedt and Philip R. Regier

### **Abstract**

This article re-evaluates and extends prior studies examining the effect of the announcement to terminate an overfunded defined benefit pension plan on the value of equity shares of the terminating company. The results of previous studies suggest that termination announcements result in positive returns to shareholders. However, this article shows that the significantly positive results disappear when (1) more precise event dates are used; (2) terminations with confounding events are eliminated; and (3) samples are comprised primarily of terminations occurring after the issuance of joint federal agency guidelines.

### **Introduction**

Studies by Alderson and Chen (1986), VanDerhei (1987), Haw, Ruland, and Hamdallah (1988), and Mitchell and Mulherin (1989) examine the effect on the sponsoring company's common stock price of the announcement to terminate and recapture pension plan assets. Using similar methodologies, these studies report statistically significant cumulative average abnormal returns ranging from .4 percent to 4.3 percent for differing three- to five-day periods surrounding the event date.<sup>1</sup>

The objective of this study is to re-evaluate and extend the seemingly robust finding that abnormal returns accrue to common shareholders around the time of the announcement of an excess asset reversion. There are three reasons for re-examining this issue. First, the samples used in prior studies were composed primarily of companies undertaking terminations prior to 1984, a period during which a company's ability to successfully complete a termination was jeopardized by lack of judicial precedent and federal

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H. Fred Mittelstaedt and Philip R. Regier are Assistant Professors at the School of Accountancy in the College of Business, Arizona State University. The authors acknowledge helpful comments provided by two anonymous referees on an earlier draft of this article.

<sup>1</sup>Haw, Ruland, and Hamdallah (1988) generate weekly security returns by aggregating daily returns in an unspecified manner. Other studies use cumulated daily returns.

guidelines in the area.<sup>2</sup> Second, the studies on excess asset reversions are strikingly at odds with implications of studies in finance and accounting which focus on the market's assessment of pension assets and liabilities. Third, the results of these studies have implications for Congressional and academic debate concerning implicit labor contracts.<sup>3</sup> These reasons are discussed more fully below.

### *Regulation Affecting Asset Reversions*

In 1981, the Great Atlantic and Pacific Tea Company (A&P) became the first major firm to terminate a pension plan covering currently employed people. Although A&P employees sued the company in an effort to block the termination, it eventually obtained the excess pension assets in a favorable court ruling. By mid-1984, other lawsuits involving early terminators had been resolved in favor of plan sponsors. In May, 1984, the Department of Labor, the Pension Benefit Guaranty Corporation (PBGC), and the Internal Revenue Service (IRS) further legitimized the practice by issuing explicit regulations governing plan terminations (hereafter referred to as "the joint guidelines"). The guidelines formalized plan termination procedures and allowed firms to replace terminated plans with new or existing defined benefit plans, as well as defined contribution plans or no plans.

From an experimental perspective, the issuance of the joint guidelines may have affected the market's response to the announcement to terminate in two ways. First, the joint guidelines may have reduced uncertainty concerning a company's ability to complete a termination, increasing the signal-to-noise ratio of the market response to the termination announcement. Using a sample composed primarily of terminations occurring after issuance of the joint guidelines should provide an improved measure of the market's response to the termination announcement. The second possibility is that the joint guidelines actually shifted the market's assessment of the probability of successfully terminating a pension plan. In this case, the market reaction to the announcement to terminate should vary before and after issuance of the joint guidelines. This study examines whether the issuance of the joint guidelines affected the market reaction to the announcement to terminate.

### *Prior Market Research Related to Ongoing Pension Plans*

Several studies have shown that the market prices pension fund assets and liabilities as corporate assets and liabilities even though they appear only in the footnotes to the financial statements and not on the statement of financial position, and that the market views unfunded pension liabilities as equivalent

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<sup>2</sup>Mitchell and Mulherin's sample is drawn from the period 1980 through 1987.

<sup>3</sup>For a more detailed discussion concerning the potential of terminations to violate implicit contracts between employers and employees, see Ippolito (1986).

to conventional debt in the determination of company risk.<sup>4,5</sup> Assuming the descriptive validity of the capital asset pricing model (CAPM) as a model of security returns, these results suggest that excess assets of a pension plan are correctly impounded in the price of a security at any point in time including, presumably, the period preceding the announcement to terminate such a plan. Given these conclusions, the results of the four market studies examining excess asset reversions appear anomalous. Why should the announcement of a pension plan asset reversion result in positive abnormal returns if the excess assets were priced by the market prior to the announcement? The next section cites potential weaknesses in the research designs of the four previous studies which could result in significant excess returns.

### *Regulation and Research Concerning Implicit Labor Contracts*

The conclusion that significant positive abnormal returns accrue to shareholders is consistent with the belief, held by many members of Congress, that the termination of pension plans transfers wealth from employees to shareholders and could be relied upon in developing regulation of asset reversions.<sup>6</sup> Two bills introduced in the 100th Congress sought to suspend terminations for reversions entirely, while bills introduced in the 101st Congress (HR 1661 (Clay) and S 685 (Metzenbaum), both entitled "Employee Pension Protection Act of 1989"), sought to dramatically reduce the excess assets available through reversion and increase the fiduciary responsibility of plan sponsors in the event of a termination.

Academics have also relied on the research. For example, Shleifer and Summers (1987), in illustrating the contention that managers are less willing to renege on implicit contracts than new owners in a hostile takeover situation, indicate that most plans raised payments to beneficiaries after the high inflation of the 1970s even though the managers were under no contractual obligation to do so. The authors then continue:

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<sup>4</sup>See, for example, Daley (1984), Landsman (1984, 1986), Dhaliwal (1986), Bulow, Morck, and Summers (1987), Feldstein and Morck (1983), Feldstein and Seligman (1981), and Oldfield (1977).

<sup>5</sup>During the time period covered by this and the four referenced studies, accounting and disclosure of pension plan information was controlled by two authoritative pronouncements: Accounting Principles Board Opinion No. 8, issued in 1966 (Accounting Principles Board (1986)), and Statement of Financial Accounting Standard No. 36, issued in 1979 and effective for fiscal years 1980 and after (Financial Accounting Standards Board (1980)). Neither APB Opinion No. 8 nor SFAS No. 36 required the presentation of pension plan assets and liabilities on the face of the financial statements, but SFAS No. 36 did require disclosure of the amounts of vested accumulated benefit obligation and plan assets in the footnotes of the financial statements. Both pronouncements have been superseded by SFAS No. 87 (Financial Accounting Standards Board (1985)), effective for fiscal years beginning after December 15, 1986. The pronouncement requires more extensive footnote disclosure and utilizes a new method for measuring pension expense. In addition, the pronouncement requires recording of a minimum net pension liability on the balance sheet under certain circumstances for fiscal years beginning after December 15, 1988.

<sup>6</sup>See U.S. Congress (1988).

Moreover, the stock market recognizes that such increases are forthcoming, and does not regard excess pension fund assets to be the property of shareholders. When firms remove excess assets from their pension funds, the *market greets the news with a share price increase* (Alderson and Chen, 1986). The market expects that managers do what employees trust them to do. (Shleifer and Summers (1987), pp. 10–11, emphasis added.)

Alderson and Chen's conclusion is central to Shleifer and Summer's argument. (Shleifer and Summers do not provide references to support their statement that the market "does not regard excess . . . assets to be the property of shareholders", and studies cited above contradict the assertion).

The next section of this article discusses potential problems affecting the internal validity of other studies examining the market's response to terminations and describes the empirical procedures used in this study. The experimental results are reported in the third section. The results indicate that the new sample selection and experimental procedures reduce the value of the z-score reflecting the significance of the portfolio average abnormal return from 10.11 reported in VanDerhei (1987, p. 149) to 1.48 when returns are cumulated across a five day event window. This evidence is inconsistent with the hypothesis that information is provided to the capital markets by announcements to terminate pension plans. Additionally, evidence is provided supporting the existence of differential return response before and after issuance of the joint guidelines. A change in the market's expectations following the issuance of the joint guidelines is a potential explanation for the difference in results obtained by this study relative to previous studies.<sup>7</sup> The final section summarizes the research and provides conclusions.

### Empirical Procedures

#### *Sample Selection and Event Date Procedures in Prior Studies*

Dodd and Warner (1983) indicate that inadequate control of concurrent events and incorrect identification of the proper event date are two areas which can have a substantial effect on the power of market tests. The validity of the conclusions reached by market studies examining excess asset reversions may be impaired by difficulties encountered in controlling concurrent events during the period examined and selecting proper event dates.

*Concurrent Events:* The samples used in the four prior studies are selected from the same source (PBGC filings); the sampling criteria of the four studies differ almost exclusively in the range of dates from which terminations are selected. Alderson and Chen study 58 reversions occurring from 1980 through 1984 that meet certain reversion size and data availability constraints. Their

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<sup>7</sup>Mitchell and Mulherin (1989, Exhibit 3) analyze whether the return response to terminations varies across time by stratifying their sample into quartiles formed on the basis of the termination announcement date. Their article reports smaller abnormal returns in the two quartiles where terminations occurred after the issuance of the joint guidelines. However, since Mitchell and Mulherin use the filing date of Form 5310 in instances where no *DJNS/WSJ* announcement is available, it is not certain whether the smaller returns in later periods are due to reduction in uncertainty following issuance of the joint guidelines, or event date misspecification.

large reversion subsample, which forms the basis of their conclusions relative to market effects of excess asset reversions, contains 30 companies. The market portion of VanDerhei's study examines 31 companies filing for termination from 1980 through October 15, 1983.<sup>8</sup> Haw, Ruland, and Hamdallah (HRH hereafter) examine 38 reversions occurring from 1980 through 1983; their sample should coincide with the 38 terminations shown in Alderson and Chen's Table 1 which occur prior to January 1, 1984. Mitchell and Mulherin (1989) examine 327 terminations occurring between July, 1980, and December, 1987. Terminations are excluded if they occur "at the same time as major events such as a merger announcement" (p. 45).

Each study acknowledges the possible existence of confounding events, however, adequate control to insure that event period returns do not reflect the impact of other events would probably reduce the experimental samples in these studies to an unacceptably small level. *A priori*, it is suspected that this lack of control tends to bias the results in prior studies toward finding significant positive market reactions, primarily because 40 to 50 percent of the terminations used in prior studies occur as a result of the sale or spinoff of a segment of the sponsoring company's business. Including companies which terminate plans as part of the partial sell-off of the underlying business segment may bias the studies' results toward rejection of the null hypothesis of no response for two reasons. First, the degrees of freedom are higher for a larger sample, making rejection of the null less difficult. Second, research by Hite, Owers, and Rogers (1987) investigating the stock return distribution of firms voluntarily selling off subsidiaries, divisions, or other operating assets (partial sell-offs) reports a significant positive abnormal return of 8.04 percent when cumulated from 50 days prior to the initial press announcement of the sell-off to 50 days after the announcement. Smaller but more significant returns are reported by Hite, Owers, and Rogers (1987, Table 2) for shorter intervals surrounding the announcement. Market reactions to termination announcements around the time of announcements of partial sell-offs may be confounded by this additional information. Examination of the financial statement footnotes for the year of termination indicates that 28 of Alderson and Chen's 58 companies, or 48 percent, terminate plans as a result of the sale or spinoff of the covered employees' subsidiary. VanDerhei (1987, pp. 143, 145) recognizes this problem but relies on the company's self-reported descriptions to the PBGC of the reason for plan termination, rather than statements contained in the independently audited financial statements, in selecting his sample. Using this procedure, he excludes six companies which indicated to the PBGC that change in ownership, merger, or liquidation was

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<sup>8</sup> Due to a slight ambiguity in pp. 142-43 of Vanderhei, the range of acceptable dates may have ended on December 31, 1983. The difficulty is minor: Alderson and Chen (1986) report only two firms terminating during the period from October 15 to December 31, 1983. We contacted Professor VanDerhei to assure ourselves concerning his experimental sample, however, computer difficulties prevented him from providing us with the sample. Throughout the rest of the article, any reference to "VanDerhei's sample" should be regarded as our assessment of the probable firms in his sample, based upon our knowledge of pension termination and PBGC mechanics.

the reason for termination. However, financial statement footnotes of at least nine other companies in his sample which self-reported other reasons for termination suggest the termination occurred as a direct result of the sale or close of operations.<sup>9</sup> Eliminating all 15 companies reduces his original sample by 41 percent.

In addition to this difficulty, many of the companies report other significant financial events, such as earnings forecasts, dividend increases, and capital restructuring or ownership changes, during the market cumulation period. Thompson, Olsen, and Dietrich (1987) find systematic returns associated with these types of information releases when reported in the *Wall Street Journal*. Results reported in this study for one sample of announcements provide control for confounding events by eliminating announcements occurring within three days of other event announcements reported on the Dow Jones News Service or in the *Wall Street Journal* (DJNS/WSJ).

*Event Dates:* The second major difficulty encountered in prior studies concerns the difficulty of obtaining valid announcement dates. Prior to the middle of 1984, the DJNS/WSJ carried few termination announcements.<sup>10</sup> The difficulty for prior studies lies in determining the date on which market participants learn of the decision to terminate overfunded plans absent such announcements in the financial press. Alderson and Chen and HRH use the official termination date as a surrogate for the event date. However, Section 4041 of ERISA requires the covered employees and the PBGC to be notified at least ten days prior to this official date of termination for terminations occurring prior to April 7, 1986.<sup>11</sup> (After April 7, 1986, notification had to be made 60 days prior to a termination.) For some companies used in Alderson and Chen the lag between employee notification and official termination is longer than one year. It is unreasonable for both company employees and the PBGC to have been notified of the decision to terminate and to expect market participants to remain ignorant of the decision. Accordingly, the official date of termination is not a valid surrogate for the event date.

VanDerhei (1987) regards the date that the PBGC logged the Form 5310 (hereafter, the PBGC notification date) to be a better surrogate of the

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<sup>9</sup>Because the PBGC does not rely on the reason for termination in the process of granting approval to terminations, firms have little reason to report the most accurate reason for the termination. The PBGC requires firms to categorize reasons for termination in one of 12 categories, with categories one through four related to changes in ownership. However, many firms which spin off business segments underlying the plan choose to report that the termination is due to reasons other than ownership changes. Many of the remaining categories are broad enough ("ERISA impact", "Adoption of new superseding plan", "No reason given, unknown", etc.) that categories other than one through four can be chosen without misrepresenting the cause of termination.

<sup>10</sup>The 52-company experimental sample for this study contains only 13 companies announcing prior to June 1, 1984.

<sup>11</sup>VanDerhei (1987, p. 135) and Mitchell and Mulherin (1984, p. 44) recognize and discuss this difficulty with Alderson and Chen.

announcement date.<sup>12</sup> While market participants *may* be provided with information on this date, the date does not provide information in many instances. Many terminations are announced by the *DJNS/WSJ* prior to the PBGC notification date. For example, in the 52-company sample in this study which includes firms that had pension termination announcements carried by the *DJNS/WSJ*, the PBGC notification date and the *DJNS/WSJ* date are the same for only four companies; for another three companies, the *DJNS/WSJ* date precedes the PBGC date by only one day. However, for 26 of the remaining terminations, the *DJNS/WSJ* date precedes the PBGC date by an average of 115.54 calendar days, with two of the *DJNS/WSJ* announcements preceding the PBGC date by over two years.<sup>13</sup> This evidence casts doubt upon the validity of using PBGC log dates as proxies for the event dates. While it may be reasonable to expect that information is provided to the market on or around the PBGC log date concerning terminations not reported by the *DJNS/WSJ* prior to the filing, little information is provided to the market on the PBGC notification date for those terminations reported by the *DJNS/WSJ* prior to the PBGC notification date.

As described in the next section, the longer time period available for this study allows samples to be formed using the PBGC log date, as in VanDerhei (1987); the earlier of the PBGC log date or the *DJNS/WSJ* date, as in Mitchell and Mulherin (1989); and the *DJNS/WSJ* date exclusively. The samples display a trade-off between sample size and certainty of initial public announcement concerning the termination. Using a sample composed entirely of announcements first occurring in the *DJNS/WSJ* is consistent with numerous other studies which regard the *WSJ* publication date as the date sophisticated investors are initially informed of potentially significant events, however, the sample size is small relative to the two other samples used in the analysis. The institutional justification for use of the *DJNS/WSJ* publication date is that both the New York Stock Exchange (NYSE) and American Stock Exchange (ASE) require listed companies to disclose via the *DJNS* any information "that could reasonably be expected to have an impact on the market for a company's securities."

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<sup>12</sup> Conversations with PBGC officials indicate that when a Form 5310 is received by the PBGC, the termination is assigned a case number and entered onto the termination case log. The date which appears on the log is the date that the request started to be processed. This date could be several days after the physical receipt of a Form 5310 at the PBGC.

As it relates to plan terminations, the purpose of the Form 5310 is to apply for an IRS determination upon termination of a plan (as required by Internal Revenue Code section 6058 (b)) or to give notice of intent to terminate a defined benefit plan (as required by ERISA section 4041 (a)). Since the primary purpose involves notification, the information required by the Form 5310 is general in nature, and provides no substantive information not publicly available at the time a plan termination is announced.

<sup>13</sup> Eliminating the two firms where the *DJNS/WSJ* date precedes the PBGC notification date by over two years results in a *DJNS/WSJ* date lead time relative to the PBGC notification date of 53.75 calendar days for the remaining 24 firms.

A question about the prior research in terminations is how the studies can use entirely different sets of event dates, with the possibility of confounded or inconsequential information conveyed concerning the termination on those dates, and still find significant abnormal returns during the event period. After examining the companies, the authors concluded that the results are almost certainly driven by a few firms undergoing major financial events during the cumulation periods under study. For example, Alderson and Chen's sample includes Graniteville, A&P, GAF Corporation, and Mattel; each firm has confounding news events reported in the *DJNS/WSJ* during the cumulation period, and generally the events are the sort resulting in positive abnormal returns (e.g., takeover and restructuring announcements). The results reported below include an instance where a few firms with confounding events during the event period are responsible for significant abnormal returns. Removing those firms from the sample results in failure to reject a null hypothesis of a nonpositive market effect associated with the termination.

### *Empirical Procedures Used in the Current Study*

**Sample Selection:** The primary source for termination announcements used in this study is the PBGC termination notification tape. The *DJNS* and the *WSJ Index* also are used to locate public announcements of terminations.

The initial sample includes all firms reported on the PBGC notification tape meeting the following criteria:

1. The termination is a verifiable termination of a primary plan, and is not associated with asset sales or discontinued operations of the sponsoring company ("true" terminations);<sup>14</sup>
2. The reversion amount is in excess of \$1 million; and
3. The PBGC notification date is between October 1, 1981, and December 31, 1987.

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<sup>14</sup>Generally this procedure is straightforward. Using the National Automated Accounting Retrieval Service (NAAARS) and company financial statements, the fiscal year financial statements for the firms in the sample are consulted. Terminations are then eliminated from our sample in the following instances:

1. Cases where the financial statement descriptions explicitly link the termination with partial sell-offs or discontinued operations. Examples include:

*Fuqua Industries:* In describing other income and deductions, the 1985 annual report states that the, "gain from termination of pension plan results form the receipt in cash of the excess assets in a pension plan which was terminated due to the 1982 sale of the greater portion of Fuqua's retail farm store business."

*Howell Industries:* The pension footnote of the 1985 financial statements indicates that as, "a result of the plant closing, the Marysville pension plan has been terminated effective July 31, 1983."

2. Cases where the termination is of a secondary plan and occurs in a period with discontinued operations or asset sales. Generally accepted accounting principles require that the gain or loss from the termination be included in the single line item reporting the asset sale or discontinued operation. The footnotes either discuss the items separately or, if the amount of the gain or loss on termination is immaterial, discuss only the partial sell-off or discontinued operation. In such instances, the linkage is inferred by matching terminations on the PBGC notification tape with concurrent asset sales or discontinued operations.

To fully explore the information conveyed by termination announcements, four different samples are used. Each sample is a subset of the preceding sample, and the date of initial public announcement becomes more certain and the event period less confounded with other financial information as the sample size decreases.

Sample One consists of the 103 NYSE or ASE terminations meeting the above three criteria with sufficient data available from the Center for Research in Security Prices (CRSP) to estimate necessary return information. The event date used for this sample is the PBGC notification date.

Sample Two is a subset of Sample One containing the 52 terminations reported on the *DJNS/WSJ*. The event date used for this sample is the earlier of the PBGC notification date or *DJNS/WSJ* date.

Sample Three consists of the 33 firms in Sample Two for which the PBGC notification date follows the *DJNS/WSJ* announcement date. The event date used is the *DJNS/WSJ* announcement date, which is regarded as a more accurate indicator of the initial public announcement than the PBGC notification date.

Sample Four is the 24 termination subset of Sample Three where there are no other financial events reported in the five-day period surrounding the announcement.<sup>15</sup> The event date is the *DJNS/WSJ* announcement date. Table 1 provides a reconciliation of the samples.

*Event-Time Methods:* The standard market study procedures described in detail in Alderson and Chen (1986) and VanDerhei (1987) are followed with only minor deviations. The procedures are derived in Patell (1976) and Dodd and Warner (1983). The market model is estimated for each security using a value-weighted market index regressed on the individual company's return from day -360 to -61 relative to the announcement date. Risk-adjusted

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<sup>15</sup> Companies are eliminated which report net earnings; release management earnings forecasts; increase dividends; announce a revitalization program; or are undergoing takeover attempts during the period. As an example of criteria used to eliminate firms in this sweep, the first two paragraphs of a 15-paragraph story in the *WSJ* from June 11, 1985 (p. 2) are included:

CHICAGO - UAL Inc. said it plans to convert for corporate use \$962 million of pension fund assets that aren't needed as benefits for employees of its United Airlines unit.

The company acknowledged that this and two other recent moves are meant to send a "clear message" to outsiders that any takeover bid would be difficult to carry through. Last week the company announced a plan to sell hotels to a series of partnerships in transactions expected to realize more than \$1 billion. UAL also recently won shareholder approval of an increase in authorized common shares to 125 million from 50 million, which the company noted could be issued in an effort to thwart a takeover. UAL said the moves also would let it realize more quickly the value of hotel real estate and of "excess" pension assets.

These paragraphs explicitly indicate at least three items other than termination which the market may be responding to on the "event" date: (1) moves designed to defend against takeover; (2) partial sell-off of assets; and (3) possible common stock issuance. On June 10, UAL stock rose \$3.875, an increase representing 7.1 percent of its market value at the time. There is at least an equal likelihood that the market reacted to new information concerning management's assessment of the likelihood of a takeover bid as to the announcement of plan termination.

**Table 1**  
**Reconciliation of Samples**

|                                                                                                                        |     |
|------------------------------------------------------------------------------------------------------------------------|-----|
| Initial Sample <sup>a</sup> .....                                                                                      | 137 |
| Less: OTC Companies .....                                                                                              | 28  |
| Less: Insufficient Returns Data <sup>b</sup> .....                                                                     | 6   |
| <i>Sample One</i> : True Terminators, Listed on the NYSE or ASE,<br>with PBGC Log Dates Prior to January 1, 1988 ..... | 103 |
| Less: Terminations Not Reported on DJNS <sup>c</sup> .....                                                             | 51  |
| <i>Sample Two</i> : True Terminations in Excess of \$1 M Reported<br>on the DJNS, 1980-1987 .....                      | 52  |
| Less: PBGC Notification Prior to DJNS Date .....                                                                       | 19  |
| <i>Sample Three</i> : DJNS/WSJ Date Earliest Announcement .....                                                        | 33  |
| Less: DJNS Date Contaminated .....                                                                                     | 9   |
| <i>Sample Four</i> : True Terminations with Uncontaminated DJNS<br>Announcements Prior to PBGC Notification .....      | 24  |

<sup>a</sup>The initial sample consists of all terminations meeting the following four criteria:

- (1) The termination is a "true" termination, not resulting from asset sales or discontinued operations;
- (2) The reversion amount is in excess of \$1 million;
- (3) The termination is reported on the PBGC notification tape; and
- (4) The PBGC notification date is between October 1, 1981, and December 31, 1987.

<sup>b</sup>Firms are eliminated if more than 30 days of returns data during the 300-day estimation period or any data during the five day cumulation period are missing.

<sup>c</sup>A total of 67 true terminations are reported on the DJNS during the relevant time period; nine of those relate to OTC companies and six are not listed on the PBGC notification tape.

abnormal returns for individual days surrounding the announcement date are determined. The standardized abnormal return for security  $j$  on day  $t$  is

$$SAR_{jt} = u_{jt} / s_{jt} C_{jt}$$

where  $s_{jt}$  is the residual standard error for company  $j$  during the estimation period and  $C_{jt}$  is a company-specific adjustment factor reflecting the fact that the cumulation returns are predicted outside of the estimation period.<sup>16</sup> Summing abnormal returns across intervals provides cumulative abnormal returns for each security ( $CAR_j$ ), and the cumulative average abnormal return (CAAR) for a set of  $N$  companies is the mean  $CAR$  across companies.

The significance of company  $j$ 's interval return is reflected in the test statistic

$$Z_j = \sum_{t=T_{1j}}^{T_{2j}} SAR_{jt} / \sqrt{T_{2j} - T_{1j} + 1}$$

<sup>16</sup>See Patell (1976) or Collins and Dent (1984).

where  $T_{1j}$  and  $T_{2j}$  are the beginning and ending days of the cumulation period relative to the announcement date, respectively. The cross-company interval test statistic is

$$Z = (1/\sqrt{N}) \sum_{j=1}^N Z_j$$

Both  $Z_j$  and  $Z$  are approximately unit normal.

**Cumulation Period:** In the current study, day 0 is the event date described in the sample selection procedure discussion above. Only three short cumulation periods are examined (five-day, three-day, and one-day) because the use of the PBGC notification tape and *DJNS/WSJ* provides relatively precise dating of the public termination announcement, and longer intervals increase the probability of residual cross-correlation, as shown by Bernard (1987).

### Excess Asset Reversions and Shareholder Wealth

#### *The Effect of Excess Asset Reversions on Shareholder Wealth*

Cross-sectional measures of the significance of the return associated with the termination announcement are presented in Table 2. The results display both smaller returns and decreased significance levels for the returns than are found in prior studies. Cross-sectionally, the only significant CAARs relate to the 33 firm sample which includes firms with other events occurring during the announcement period.

**Table 2**  
Cumulative Average Abnormal Returns (CAARs)  
and Cross-Firm Interval Test Statistics for Four Samples

|                                    | Event Window: |        |        |
|------------------------------------|---------------|--------|--------|
|                                    | [-2,2]        | [-1,1] | [0]    |
| <i>Panel A: Sample 1 (n = 103)</i> |               |        |        |
| CAAR (%)                           | .276          | .173   | .001   |
| Z-Statistic*                       | .446          | .551   | -.167  |
| <i>Panel B: Sample 2 (n = 52)</i>  |               |        |        |
| CAAR (%)                           | .367          | .502   | .450   |
| Z-Statistic                        | 1.149         | 1.322  | 1.581  |
| <i>Panel C: Sample 3 (n = 33)</i>  |               |        |        |
| CAAR (%)                           | 1.109         | .723   | .809   |
| Z-Statistic                        | 1.797*        | 1.490  | 2.124* |
| <i>Panel D: Sample 4 (n = 24)</i>  |               |        |        |
| CAAR (%)                           | 1.016         | .800   | .608   |
| Z-Statistic                        | 1.477         | 1.397  | 1.347  |

\* Distributed as a Student t-statistic with 298 (300-2) degrees of freedom.

\* Significant at alpha equal to .05 (one-tailed).

The CAARs for Sample 1, which defines the announcement date in the same way as VanDerhei (1987), are small (less than .3 percent) and insignificant across all event windows at high alpha levels. The one-day cumulative abnormal return for Sample Two, which defines the announcement date in the same way as Mitchell and Mulherin (1989), is significant at a one-tailed alpha-level of about 5.7 percent, but the CAAR itself is only .45 percent. This is consistent with the results reported by Mitchell and Mulherin (1989, Exhibit 3), but is much smaller than the strongest results of other studies. Alderson and Chen's strongest finding is a 4.51 percent CAAR over ten days following the announcement ( $z = 2.94$ ), while VanDerhei's strongest finding is a 2.20 percent CAAR in the five-day window surrounding the announcement ( $z = 10.11$ ).

Panels C and D provide results for terminations with initial public announcements occurring on the *DJNS/WSJ*. In Panel C, the null hypothesis of no effect is rejected at an alpha level of .05 for the 33 company subsample for the five-day and one-day window. Again, however, the size of the CAARs are smaller than those found in prior studies. When companies with potentially confounding events are removed (Panel D), the size of the five-day and one-day CAARs decrease and are not reliably different from zero. The CAAR over the five-day window for Sample Four - the sample with the most accurately dated initial announcements and cleanest event periods - is 1.02, roughly a quarter to a half as large as those reported in prior studies, and the significance level is much smaller: about 7 percent of all random draws from a normal population result in values as large as 1.48, and neither the three-day nor the one-day returns are more significant.

Table 3 provides evidence on the issue of whether the market reaction to termination announcements differs in the pre-and post-joint guidelines eras. The evidence displayed is consistent with the market reaction to pension termination announcements being larger prior to the issuance of the joint guidelines. However, the variance of the returns during the event periods is also larger, possibly because of greater uncertainty concerning the ability of management to complete the announced termination. This general pattern is exhibited in Panels B, C, and D. In most cases, the significance levels of the returns are not reliably different from zero, but in almost all instances the CAARs are larger in the pre-joint guideline period. These results must be interpreted carefully, however, due to the small sample sizes available during the pre-joint guideline period.

### **Summary and Conclusions**

Prior studies examine the decision to terminate overfunded defined benefit pension plans and recapture the associated excess assets. These studies generally use samples of firms composed primarily of pre-1984 terminators, and all of the studies find significant positive abnormal returns accruing to shareholders in periods surrounding the termination announcement date.

Table 3

Cumulative Average Abnormal Returns (CAARs) and  
Cross-Firm Interval Test Statistics for Samples  
Subdivided into Pre- and Post-Joint Guideline Subsamples

|                                    | Event Window: |        |        |
|------------------------------------|---------------|--------|--------|
|                                    | [-2,2]        | [-1,1] | [0]    |
| <i>Panel A: Sample 1 (n = 103)</i> |               |        |        |
| <i>Before June, 1984 (n = 25)</i>  |               |        |        |
| CAAR (%)                           | .821          | .158   | .187   |
| Z-Statistic                        | .826          | .411   | .269   |
| <i>After May, 1984 (n = 78)</i>    |               |        |        |
| CAAR (%)                           | .101          | .178   | -.053  |
| Z-Statistic                        | .058          | .401   | -.344  |
| <i>Panel B: Sample 2 (n = 52)</i>  |               |        |        |
| <i>Before June, 1984 (n = 13)</i>  |               |        |        |
| CAAR (%)                           | .821          | 2.137  | .930   |
| Z-Statistic                        | .609          | 1.664* | .940   |
| <i>After May, 1984 (n = 39)</i>    |               |        |        |
| CAAR (%)                           | .216          | -.043  | .290   |
| Z-Statistic                        | .975          | .565   | 1.283  |
| <i>Panel C: Sample 3 (n = 33)</i>  |               |        |        |
| <i>Before June, 1984 (n = 8)</i>   |               |        |        |
| CAAR (%)                           | .856          | 2.234  | 2.037  |
| Z-Statistic                        | .500          | 1.353  | 1.674* |
| <i>After May, 1984 (n = 25)</i>    |               |        |        |
| CAAR (%)                           | 1.190         | .239   | .416   |
| Z-Statistic                        | 1.782*        | .946   | 1.493  |
| <i>Panel D: Sample 4 (n = 24)</i>  |               |        |        |
| <i>Before June, 1984 (n = 7)</i>   |               |        |        |
| CAAR (%)                           | 1.320         | 1.599  | 1.815  |
| Z-Statistic                        | .700          | .842   | 1.228  |
| <i>After May, 1984 (n = 17)</i>    |               |        |        |
| CAAR (%)                           | .891          | .471   | .111   |
| Z-Statistic                        | 1.305         | 1.119  | .812   |

\* Distributed as a Student t-statistic with 298 (300-2) degrees of freedom.

\* Significant at a one-tailed alpha-level of .05.

This study extends these prior works in two ways. First, the study includes companies terminating plans after mid-1984, when federal guidelines on reversions were finalized and important lawsuits in the area achieved closure. Second, the study uses a sample selection procedure allowing event dates to be

determined from initial announcements in the *DJNS/WSJ*, rather than relying exclusively on the PBGC notification dates.

Samples are obtained, and cross-sectional tests are performed to re-evaluate the market's reaction to the announcement of the decision to terminate an overfunded defined benefit pension plan. The results of the tests fail to reject the null hypothesis of no market effect, except in instances where confounding events occur during the event period. In other instances, the abnormal returns are insignificant at relatively high alpha levels.

There are at least two ways to view the relationship of this study to the four prior studies in the area of plan terminations. One perspective is that the disparity in the conclusions of the studies is an artifact of the time period from which the termination announcements are drawn. In the early days of terminations the procedure was novel, and the announcements may have been informative to the market. However, during a period of time following these initial announcements the market revised its expectations concerning ownership rights of overfunded plan assets. This revision occurred in response to many events, including favorable court decisions for plan sponsors, numerous successful completions of uncontested terminations, and the issuance of federal guidelines which made it easier for a plan sponsor to terminate a plan. Accordingly, for a sample of firms such as ours, composed primarily of termination announcements from 1984 and later, there is no market response because the market already views the overfunded assets as owned by the shareholders; the termination amounts to little more than a reallocation of assets. This alternative explanation for the current study's results in relation to prior studies' is examined in Table 3, and the exploratory evidence suggests that it has some basis. However, the conclusion is tentative at best, considering the small number of announcements provided by the *DJNS/WSJ* prior to issuance of the joint guidelines.

The second perspective offered is that prior studies measured the market's reaction to events other than terminations. Thus, terminations occurring both before and after mid-1984 may have been viewed as a reallocation of resources and not a wealth transfer to shareholders. Results reported in Tables 2 and 3 show that a few firms undergoing major financial events during cumulation periods can cause cross-sectional abnormal returns to be significant. This perspective is also consistent with other studies in the finance and accounting literature which demonstrate that the market impounds the asset/liability position of ongoing plans, suggesting that other events must be responsible for any abnormal returns associated with termination announcements. The perspective is also the most plausible explanation for the large abnormal returns found by Alderson and Chen (1986) and HRH (1988) using the official date of termination. The validity of using this date as a proxy for the initial public announcement of a pension plan termination has been questioned by Vanderhei (1987), Mitchell and Mulherin (1989), and the authors of this study.

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