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# The Effect of Long-Term Performance Plans on Corporate Sell-Off-Induced Abnormal Returns

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## ABSTRACT

This study examines the association between long-term performance plans and wealth effects accruing to stockholders of divesting firms at announcements of sell-off proposals. The results indicate that divesting companies with long-term performance plans experience a more favorable stock market reaction at the announcement of sell-off proposals relative to firms without long-term performance plans. The findings imply that long-term performance plans serve as an effective mechanism to motivate managers to make better decisions.

SUBSTANTIAL RESEARCH HAS BEEN undertaken on restructuring corporate assets, liabilities, and ownership of publicly traded corporations. With regard to asset restructuring, most of the literature analyzes mergers and tender offers, but, recently, attention has been given to divesting activities.

Divestiture is a modification of the firm's productive assets and comes in the form of sell-offs or spin-offs. In sell-offs, the parent company sells part of its assets for cash, assets, or securities of the acquiring firm. Spin-offs involve transfers of assets to a newly organized firm whose shares are distributed to stockholders of the parent firm or involve the distribution of shares of a subsidiary to the parent firm's shareholders. While recent studies<sup>1</sup> provide evidence that spin-off announcements are associated with significant positive abnormal returns to parent firms around the day of the event, the studies on voluntary sell-offs report mixed results.<sup>2</sup> These results raise questions about management's motivation to sell part of the firm's assets.

Prior research assumes that corporate sell-offs are activities consistent with stockholders' interests. However, sell-offs can be motivated by managerial self-interest, particularly when sell-offs increase reported profits and, hence, management compensation. Recent articles in the financial press<sup>3</sup> suggest that firms

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<sup>1</sup> See Miles and Rosenfeld [16], Hite and Owers [8], and Schipper and Smith [20].

<sup>2</sup> Rosenfeld [19], Jain [11], and Hite, Owers, and Rogers [9] report that sell-off announcements produce significant positive abnormal returns on the announcement day(s). However, Alexander, Benson, and Kampmeyer [1] report that sell-off announcements produce insignificant positive excess returns during the announcement period and insignificant negative excess returns for the thirty-day period immediately after the announcement period.

<sup>3</sup> See *Business Week*, August 1981; *Forbes*, March 19, 1979 and February 15, 1981; *Fortune*, June 15, 1981; and also the following front-page articles in the *Wall Street Journal*: January 3 and 15, 1979, June 10, 1980, and August 11, 1981.

undertake sell-off activities to dispose of nonprofitable ventures. Managers' perceptions of the "nonprofitability" of a venture depends, however, on their own time horizon in making decisions. Their horizon, in turn, is affected by compensation plans available to them. If their compensation is based mainly on short-term bonuses, they are concerned with the venture's short-term profits. Such a short-term bias can motivate selling off units that yield low short-term earnings but support the firm's long-term profitability.<sup>4</sup> On the other hand, if part of management compensation is contingent upon long-term performance, management decisions will be consistent with the firm's long-term profitability, motivating managers to sell units that are "out of fit" with the firm's other assets and that generate losses on a permanent basis. Since different firms have different compensation packages, it is an interesting empirical issue to examine whether sell-off-related abnormal returns are associated with the type of managerial incentive plans available to managers.

Section I examines the relation between executive compensation plans and managerial decisions. Section II discusses data collection and methodology. Empirical results are reported in Section III, and a summary and conclusions are presented in Section IV.

## **I. Executive Compensation and Sell-Off Decisions**

Compensation contracts are often adopted by companies to address incentive and tax issues (Hite and Long [7]). The incentive issues include the risk-aversion problem (Holmström [10], Amihud and Lev [2], and Shavell [22]), the horizon problem (Furubotn and Pejovich [5] and Jensen and Meckling [12]), and the overretention problem (Smith and Watts [23]). Most companies compensate their executives with short-term bonus plans and one or more types of long-term plans.<sup>5</sup> Many long-term performance plans were introduced during the mid-

<sup>4</sup> As noted by Smith and Watts [23], short-term bonus plans can affect real investment and financing decisions of a firm. For example, because they are typically tied to annual profits, bonus plans give managers incentives to turn down positive net-present-value projects with long payback periods. Furthermore, management compensation gives managers a direct interest in the choice among alternative accounting techniques. For instance, Healy [6] provides evidence that a firm's choice of accounting-accrual policy is influenced by the effects of those policies on bonuses awarded to managers.

<sup>5</sup> The 1978 ExecuComp Survey (Segal and Associates, [21]) indicates that approximately seventy percent of the top 1000 firms have a short-term bonus scheme and eighty-five percent sponsor at least one long-term plan. In fact, all 146 firms in our sample have short-term bonus and option plans. There are six basic compensation schemes that are commonly classified as long-term plans: (a) stock options (qualified, nonqualified, and incentive stock options), (b) stock appreciation rights, (c) phantom stock, (d) dividend units, (e) restricted stock, and (f) performance plans (performance units or performance shares). For a more comprehensive explanation of each plan, see Smith and Watts [23]. Long-term performance plans have the following features: (a) a compensation committee of the board of directors sets accounting performance targets (in terms of earnings per share, return on assets, and return on stockholders' equity) for a multiple-year period (usually three to five years); (b) a fixed number of shares or units are allocated to each participating executive at the beginning of the period; (c) each unit has a fixed dollar value, and each share's value is the market price at the end of the award period; (d) number of shares or units earned is based on whether performance goals are met.

1970's to increase managers' decision-making horizon and to reward them for taking risk. There is presently no theory as to why companies adopt different types of compensation plans and how these plans affect sell-off decisions. This study makes no attempt to develop one. However, sell-offs can be viewed as investment decisions motivated by incentive compensation contracts available to managers of divesting firms.

Interests of management and stockholders could diverge when the firm is making investment decisions (Mikkelsen and Ruback [15]). A source of conflict addressed in the literature is the horizon problem (Narayanan [17]). That is, managers focus on short-term profits at the expense of long-term profitability. Such a short-term bias is reinforced by wage schemes that base management bonuses on annual profits. Since all or part of managers' remuneration is contingent on short-term performance, they become "quick-profit" oriented, and thus they are tempted to dispose of assets that generate short-term losses regardless of their long-term potential. In the context of Narayanan's [17] model, managers are motivated to do so to improve the perception about their ability early and earn higher wages.

On the other hand, if companies provide long-term performance plans, the manager's decision-making horizon is lengthened at least three to six years since all performance plan compensation is deferred until the end of the award period and compensation is forfeited if the manager leaves during the award period. These plans induce higher effort levels (Larcker [13]), and stockholders can better identify and assess the manager's efforts (Holmström [10]). Therefore, the longer the duration of a manager's contract, the higher the probability that he or she will make decisions consistent with stockholders' long-term interests.<sup>6</sup>

To investigate the impact of long-term performance plans, this study examines the following two hypotheses:

1. Announcement of a sell-off by a divesting firm compensating its executives with a long-term performance plan is associated with a favorable security market reaction.
2. Announcement of a sell-off by a divesting firm not compensating its executives with a long-term performance plan is not associated with a favorable security market reaction.

<sup>6</sup> Long-term performance plans might not be the only effective mechanism to align the interests of stockholders and managers. Executives typically own a nontrivial amount of stock and stock options in their corporations, and this is likely to motivate managers to act in shareholders' best interests. In light of empirical evidence on various incentive plans, this study concentrates only on long-term performance plans that control the horizon problem. For instance, Lewellen, Loderer, and Rosenfeld [14] examine the impact of management's ownership interest on a bidder firm's stock returns in a merger. They find that managers' relative shareholdings are greater, in general, for mergers with positive excess returns relative to mergers with negative excess returns. However, this difference is not significant at the five percent level for most comparisons. When mergers are sorted by the proportion of outstanding shares held by managers, there is weak evidence of a relation between the cumulative excess stock returns associated with the merger and the measure of relative stockholdings by managers. Furthermore, Tehranian, Travlos, and Waagelein [24] report no relationship between managerial stock ownership (including stock options) and abnormal share-price performance of acquiring firms at the announcement of takeover bids. Similar findings are reported by Petry, Settle, and Varaiya [18].

## II. Data and Methodology

### A. Data

Data analyzed in this study consist of a sample of public announcements of proposals to sell a portion of the firm's assets. The sample includes transactions for the period 1974 through 1982. Divesting firms are listed on the New York Stock Exchange (NYSE) or the American Stock Exchange (AMEX). The sample was obtained from the Federal Trade Commission's *Statistical Report on Mergers and Acquisitions* (July, 1981), *Mergers and Acquisitions*, and the *Wall Street Journal Index*. The announcement date of sell-off is the date when an offer was first published in the *Wall Street Journal*. To determine event dates accurately and to insulate sell-off announcements from other major corporate events around the same period, the corporate history, contained in the *Wall Street Journal Index*, was reviewed for all firms included in the sample for the period around the announcement of a sell-off. Firms with concurrent major corporate events (e.g., takeover bids, leveraged buyouts, or other sell-off and divesting activities) for -30 to + 30 days relative to the announcement date ( $t = 0$ ) are not included in the final sample. Finally, firms selected for this study have daily common stock returns in the Daily Returns File of the Center for Research in Security Prices (CRSP).

The final sample contains 146 divesting firms. Proxy statements for these companies were examined to determine compensation plans in effect prior to sell-off announcements. All 146 firms have short-term bonus and option plans. Eighty firms have only these types of compensation plans, while the remaining sixty-six firms have long-term performance plans as well. Table I presents the frequency distribution of proposed sell-offs in the sample for firms with and without long-term performance plans.

**Table I**  
Frequency Distribution of Sell-Offs in the Sample  
Years 1974 through 1982

| Year  | Number of Sell-Offs<br>by Firms without<br>Long-Term Performance | Number of Sell-Offs<br>by Firms with<br>Long-Term Performance |
|-------|------------------------------------------------------------------|---------------------------------------------------------------|
|       | Plans                                                            | Plans                                                         |
| 1974  | 4                                                                | 0                                                             |
| 1975  | 1                                                                | 2                                                             |
| 1976  | 2                                                                | 3                                                             |
| 1977  | 1                                                                | 1                                                             |
| 1978  | 8                                                                | 9                                                             |
| 1979  | 16                                                               | 18                                                            |
| 1980  | 16                                                               | 12                                                            |
| 1981  | 20                                                               | 15                                                            |
| 1982  | 12                                                               | 6                                                             |
| Total | 80                                                               | 66                                                            |

### B. Methodology

The hypotheses are examined by applying an event-time methodology similar to that described in Dodd and Warner [4]. For each security  $j$ , the market model is used to calculate a prediction error, or abnormal return, for event day  $t$  as follows:

$$PE_{jt} = R_{jt} - (\hat{\alpha}_j + \hat{\beta}_j R_{mt}), \quad (1)$$

where  $R_{jt}$  is the rate of return on security  $j$  for event date  $t$  and  $R_{mt}$  is the rate of return on the CRSP equally weighted index on event day  $t$ . The coefficients  $\hat{\alpha}_j$  and  $\hat{\beta}_j$  are ordinary least-squares estimates of firm  $j$ 's market-model parameters. The estimation period is from  $t = -136$  to  $t = -16$  relative to the initial date of announcement in the *Wall Street Journal*, day  $t = 0$ . Prediction errors are calculated for each security over the interval  $t = -15$  to  $+15$ . For a sample of  $N$  securities, an average prediction error (abnormal return) for each day  $t$  is defined as

$$APE_t = \frac{1}{N} \sum_{j=1}^N PE_{jt}. \quad (2)$$

The average cumulative prediction error from event day  $T_1$  to event day  $T_2$  is defined as

$$ACPE_{T_1}^{T_2} = \sum_{t=T_1}^{T_2} APE_t. \quad (3)$$

The expected values of  $APE_t$  and  $ACPE$  are zero in the absence of abnormal performance. To test the significance of  $APE$  and  $ACPE$ , average standardized prediction errors ( $ASPE$ ) and average standardized cumulative prediction errors ( $ASCPE$ ) are calculated as follows:

$$ASPE_t = \frac{1}{N} \sum_{j=1}^N \frac{PE_{jt}}{S_{jt}}, \quad (4)$$

where  $S_{jt}$  is the estimated standard deviation of the prediction error.<sup>7</sup> Assuming cross-sectional independence,  $ASPE_t$  approaches a normal distribution with zero mean and variance  $1/N$ . Therefore, the statistic

$$Z_t = \sqrt{N} \times ASPE_t \quad (5)$$

$$^7 S_{jt} = \left[ s_j^2 \left( 1 + \frac{1}{D_j} + (R_{mt} - \bar{R}_m)^2 / \sum_{k=1}^{D_j} (R_{mk} - \bar{R}_m)^2 \right) \right]^{1/2},$$

where

- $s_j^2$  = residual variance for security  $j$  from the market-model regression,
- $D_j$  = number of observations during the estimation period,
- $R_{mt}$  = rate of return on the market index for day  $t$  of the event period,
- $\bar{R}_m$  = mean rate of return on the market index during the estimation period,
- $R_{mk}$  = rate of return on the market index for day  $k$  of the estimation period.

is unit normal. Average standardized cumulative prediction error is defined as

$$ASCPE_{T_1}^{T_2} = \sum_{t=T_1}^{T_2} ASPE_t. \quad (6)$$

Assuming serial independence, the statistic

$$Z = \frac{\sqrt{N}}{\sqrt{T_2 - T_1 + 1}} \sum_{t=T_1}^{T_2} ASPE_t \quad (7)$$

is also distributed unit normal.

Finally, a statistic is derived to test for differences in prediction errors of divesting firms across different types of managerial incentive plans. The relevant statistic is

$$Z_{D_t} = \frac{ASPE_{1t} - ASPE_{2t}}{\sqrt{1/N_1 + 1/N_2}}, \quad (8)$$

where

$ASPE_{1t}$  = average standardized prediction error at event day  $t$  for type-1 managerial incentives firms,

$ASPE_{2t}$  = average standardized prediction error at event day  $t$  for type-2 managerial incentives firms.

$N_1, N_2$  = number of firms in each group, respectively.

### III. Results

#### A. Divesting Firms without Long-Term Performance Plans

Table II presents results for the behavior of daily average abnormal returns for the firms without long-term performance plans and those with long-term performance plans for each day in the period of  $-15$  to  $+15$  days relative to the announcement day ( $t = 0$ ). The first column presents event time in terms of trading days. The second column contains daily average abnormal returns (AR's) for each event day for the eighty divesting firms without long-term performance plans. The third column shows Z-statistics for daily average abnormal returns. These statistics, based on average standardized abnormal returns, indicate whether the null hypothesis of zero-average standardized abnormal returns on a given event day can be rejected. Finally, the fourth and fifth columns have daily average abnormal returns and Z-statistics, respectively, for the sixty-six firms with long-term performance plans.

As shown in Table II (columns 2 and 3), announcements of sell-off proposals by divesting firms without long-term performance plans are associated, in general, with insignificant negative abnormal returns. The average abnormal returns (AR's) for the day prior to the announcement of the sell-off proposal in the *Wall Street Journal* ( $t = -1$ ) and for the announcement day ( $t = 0$ ) are 0.09 percent and  $-0.24$  percent, respectively, and are insignificant at any conventional level.

Table II

Daily Average Abnormal Returns (AR) for the Sample of Eighty Divesting Firms without Long-Term Performance Plans and for the Sample of Sixty-Six Divesting Firms with Long-Term Performance Plans for Fifteen Days before and Fifteen Days after the Announcement (Day Zero) of a Sell-Off Proposal

| Event Day | Firms without Long-Term<br>Performance Plans<br>(N = 80) |         | Firms with Long-Term<br>Performance Plans<br>(N = 66) |         |
|-----------|----------------------------------------------------------|---------|-------------------------------------------------------|---------|
|           | AR                                                       | Z       | AR                                                    | Z       |
| -15       | 0.0018                                                   | 1.2477  | -0.0024                                               | -1.1930 |
| -14       | 0.0002                                                   | -0.2998 | 0.0006                                                | 0.2296  |
| -13       | 0.0015                                                   | 0.3578  | -0.0018                                               | -0.8288 |
| -12       | 0.0030                                                   | 0.8129  | -0.0022                                               | -0.8632 |
| -11       | 0.0002                                                   | 0.3865  | -0.0012                                               | -0.8909 |
| -10       | 0.0009                                                   | 0.0739  | 0.0024                                                | 1.2357  |
| -9        | 0.0006                                                   | -0.0185 | -0.0007                                               | -0.6520 |
| -8        | -0.0006                                                  | -0.4438 | -0.0029                                               | -1.0765 |
| -7        | -0.0008                                                  | -0.5453 | 0.0003                                                | 0.2588  |
| -6        | 0.0039                                                   | 1.3771  | 0.0000                                                | 0.1295  |
| -5        | 0.0005                                                   | 0.4154  | 0.0006                                                | 0.2996  |
| -4        | 0.0006                                                   | -0.4488 | -0.0007                                               | -0.1539 |
| -3        | 0.0034                                                   | 1.7957  | 0.0039                                                | 2.2887  |
| -2        | -0.0005                                                  | -0.3470 | 0.0008                                                | 0.8816  |
| -1        | 0.0009                                                   | 0.2844  | 0.0068                                                | 3.4311  |
| 0         | -0.0024                                                  | -1.1884 | -0.0003                                               | -0.2478 |
| 1         | -0.0046                                                  | -1.8387 | 0.0023                                                | 1.3180  |
| 2         | -0.0022                                                  | -0.9234 | 0.0022                                                | 0.7587  |
| 3         | 0.0006                                                   | 0.3671  | 0.0024                                                | 0.9841  |
| 4         | 0.0010                                                   | 0.4268  | -0.0020                                               | -1.4371 |
| 5         | 0.0023                                                   | 1.1984  | -0.0017                                               | -1.0582 |
| 6         | -0.0028                                                  | -1.3448 | -0.0043                                               | -1.6725 |
| 7         | -0.0006                                                  | -0.4434 | 0.0006                                                | 0.4783  |
| 8         | 0.0008                                                   | 0.0325  | 0.0000                                                | 0.1484  |
| 9         | 0.0031                                                   | 1.2071  | 0.0022                                                | 1.0058  |
| 10        | -0.0005                                                  | -0.5810 | -0.0012                                               | -0.4668 |
| 11        | 0.0007                                                   | 0.4513  | 0.0003                                                | -0.0058 |
| 12        | -0.0011                                                  | 0.2986  | -0.0010                                               | -0.3984 |
| 13        | 0.0004                                                   | 0.4855  | 0.0018                                                | 1.3013  |
| 14        | 0.0013                                                   | 0.4179  | -0.0024                                               | 1.1034  |
| 15        | -0.0017                                                  | -0.6161 | 0.0012                                                | 1.0303  |

In addition, the two-day  $(-1, 0)$ <sup>8</sup> announcement-period abnormal return (CAR) and the three-day  $(-1, +1)$  CAR are  $-0.15$  percent and  $-0.61$  percent, respectively, and are also insignificant. Based on these results, one cannot reject the null hypothesis that average abnormal standardized returns of divesting firms

<sup>8</sup> Depending on what time during a trading day the announcement is made, either the publication day or the day before might be the relevant announcement day. Since the exact time of an announcement is not known, a two-day-period cumulative abnormal return is considered, as well as an announcement-period return.

without long-term performance plans are equal to zero around the announcement day. Therefore, announcements of sell-offs by firms without long-term performance plans are associated with insignificant common stock market reaction. The results suggest that investors do not view these sell-offs as positive net-present-value decisions.

### B. Divesting Firms with Long-Term Performance Plans

Columns 4 and 5 of Table II show that announcements of sell-off proposals by firms with long-term performance plans are associated in general with significant positive abnormal returns. In particular, the average daily abnormal returns for event days  $t = -1$  and  $t = 0$  are 0.68 percent and  $-0.03$  percent, respectively. Furthermore, the CARs for event periods  $t = -1$  to  $t = 0$  and  $t = -1$  to  $t = +1$  are 0.65 percent and 0.88 percent, respectively. With the exception of the abnormal return for event day  $t = 0$ , these abnormal returns are significant at the five percent level. These findings suggest that announcements of sell-offs by firms with long-term performance plans are viewed by investors as positive net-present-value decisions.

### C. Differential between Divesting Firms with and without Long-Term Performance Plans

This section presents daily mean differences between average abnormal returns of sixty-six divesting firms with long-term performance plans and average abnormal returns of eighty divesting firms without plans. As shown in Table III, at the announcement date ( $t = 0$ ), the daily mean difference of abnormal returns

**Table III**  
Abnormal Returns and Differential Abnormal Returns for Selected Intervals  
around the Announcement Day (Z-Statistics in Parentheses)

|                       | Firms without Long-Term<br>Performance Plans | Firms with Long-Term<br>Performance Plans | Differences <sup>a</sup><br>(Plans Minus No Plans) |
|-----------------------|----------------------------------------------|-------------------------------------------|----------------------------------------------------|
| CAR <sub>-5, +5</sub> | -0.0003 (-0.04)                              | 0.0142 (2.12)                             | 0.0145 (1.59)                                      |
| CAR <sub>-4, +4</sub> | -0.0031 (-0.62)                              | 0.0161 (2.61)                             | 0.0192 (2.35)                                      |
| CAR <sub>-3, +3</sub> | -0.0047 (-0.69)                              | 0.0181 (3.56)                             | 0.0228 (3.10)                                      |
| CAR <sub>-2, +2</sub> | -0.0087 (-1.79)                              | 0.0110 (2.41)                             | 0.0197 (2.99)                                      |
| CAR <sub>-1, +1</sub> | -0.0061 (-1.59)                              | 0.0088 (2.59)                             | 0.0149 (2.97)                                      |
| CAR <sub>-1, 0</sub>  | -0.0015 (-0.64)                              | 0.0065 (2.25)                             | 0.0079 (2.09)                                      |
| AR <sub>-1</sub>      | 0.0009 (0.28)                                | 0.0068 (3.43)                             | 0.0059 (2.31)                                      |
| AR <sub>0</sub>       | -0.0024 (-1.19)                              | -0.0003 (-0.24)                           | 0.0021 (0.62)                                      |
| AR <sub>+1</sub>      | -0.0046 (-1.84)                              | 0.0023 (1.32)                             | 0.0069 (2.22)                                      |

<sup>a</sup> The numbers in parentheses in this column give the Z-statistics of the differences in the abnormal return between the two subsamples.

The Z-statistics of the differential ARs are calculated by using the formula shown in the text, while the Z-statistics of the differential CARs are calculated by using the formula:

$$Zd = \frac{ASCPE_1 - ASCPE_2}{\sqrt{\frac{T_2 - T_1 + 1}{N_1} + \frac{T_2 - T_1 + 1}{N_2}}}$$

between the two portfolios is +0.21 percent, which is insignificant at the five percent level. However, the daily mean difference for the day before the announcement is +0.59 percent and is significant at the five percent level. Also, the two-day  $(-1, 0)$  differential CAR is +0.79 percent, and the daily mean difference for the day after announcement is +0.69 percent. Both are significant at the one percent level. These results support the hypothesis that the two samples of divesting firms react differently on average to announcements of sell-off proposals. The findings suggest that sell-offs by firms with long-term performance plans are better (based on market data) than those undertaken by firms without such plans. This implies that long-term performance plans serve as an effective mechanism to better align the interests of stockholders and managers.

#### IV. Summary and Conclusion

This study examines the association between long-term performance plans and wealth effects accruing to stockholders of divesting firms at announcements of sell-off proposals. The results indicate that divesting companies that compensate their executives with long-term performance plans experience a statistically significant favorable stock market reaction around the announcement of sell-off proposals. Conversely, divesting firms that do not compensate their executives with long-term performance plans experience an insignificant negative stock market reaction at the announcement of their sell-off proposals. These findings provide support for the hypothesis that long-term performance plans are important contracts that can reduce agency costs by improving the alignment of managers' and stockholders' interests. Moreover, they are consistent with recent evidence documenting statistically significant positive abnormal common stock returns at announcements of adoption of long-term performance plans (Larcker [13] and Brickley, Bhagat, and Lease [3]). Finally, the findings imply that managerial compensation plans serve as an effective mechanism in the market for corporate control to motivate managers to make better decisions.

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