

SHORT-TERM BONUS PLAN ADOPTION AND STOCK MARKET PERFORMANCE— PROXY AND INDUSTRY EFFECTS: A NOTE

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ABSTRACT

This note extends previous studies and further examines the market reaction to short-term executive compensation plan introduction by using a larger sample and controlling for proxy and industry effects. Results indicate significantly positive abnormal returns not due to proxy or industry effects in the four months before adoption and the month of adoption. The price adjustment is not instantaneous. Firms adopting short-term compensation plans also experience significantly positive abnormal returns ten months after announcement, associated with positive unexpected earnings in that month.

INTRODUCTION

Recent capital market research examines the stock market reaction to changes in compensation contracts for managers. Larcker [5] and Brickley, Bhagat, and Lease [2] find that stockholders react favorably to long-term performance plan adoption. The authors also find that the introduction of a long-term performance plan is associated with positive abnormal returns. Another study examining short-term bonus plan adoption by Tehranian and Waegelein [7] finds that significantly positive abnormal returns occur in the month of announcement, in the four months before the bonus plan adoption, and ten months after the adoption announcement upon announcement of positive unexpected earnings.

A potential problem with the Brickley, Bhagat, and Lease and the Tehranian and Waegelein papers is that no control group was used to control for proxy effects and industry effects. The strong positive market reaction may have resulted from other information contained in the proxy statement or from good news affecting the entire industry.

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This note extends the Tehranian and Waegelein study and further examines the market reaction to short-term executive compensation plan introduction by using a larger sample size and a control group. The first section describes the sample selection procedures. The next section discusses the methodology and presents the experimental results. The paper concludes with a summary.

SAMPLE SELECTION

The economic rationale for adopting short-term executive compensation plans, the features of these plans, and the theory of why the stock market would react to these plans are discussed in detail in [7].

Selection of Sample

We used the sample of forty-two firms from the Tehranian and Waegelein study. The sample was then expanded by observing the proxy statements of all New York Stock Exchange Companies. By choosing 100 companies at random and examining their proxy statements from 1970 to 1980, we identified thirteen additional companies that adopted or proposed the adoption of short-term bonus plans.¹ All firms in the sample had at least one long-term compensation plan (stock options and/or performance shares).

Sources of Data

The data for stock market price and market returns were obtained from Compustat's Price-Dividends-Earnings database. Data on the type of compensation plan for executives came from the proxy statements of the sample corporations. For a firm to be considered for the sample, we used the same criteria and the same event date used in [7].

Examination of the *Wall Street Journal Index* for the year prior to the event date for each firm in the sample revealed no other public announcements of the bonus plan adoption in all

¹It was not possible to use a control group composed of firms that had not adopted a short-term compensation plan because almost all companies have short-term bonus plans. Also, a company does not always disclose in each proxy statement that it had previously adopted a short-term bonus plan. The 1978 and 1979 *ExecuComp Surveys* (Segal & Associates [6]) indicate that approximately 70 percent of the top 1,000 firms have a short-term bonus scheme and 85 percent sponsor at least one long-term plan. Also, the 1979 survey by Towers, Perrin, Forster, and Crosby [8] indicates that 98 of the top 100 firms have a short-term plan and 93 firms have at least one long-term incentive plan.

cases.² The event dates range from January 1, 1971 to December 31, 1980 with every year from 1971 to 1980 represented.

After the experimental firms were determined, control firms were matched to the experimental firms. At least two proxy statements were examined to confirm that a control firm had a bonus or short-term incentive plan during the three-year period prior to bonus adoption. The firms were then matched first by industry, then by sales in the year prior to bonus plan adoption, and finally by fiscal year. Four firms were eliminated from the original Tehranian and Waegelein sample because no match was available with a sales ratio of less than 3.00 to 1.00.

METHODOLOGY AND EXPERIMENTAL RESULTS

The primary methodology employed to measure the magnitude and timing of security price adjustments to the release of information surrounding the introduction and adoption of short-term executive compensation plans is the residual analysis (prediction error) technique based upon the market model. This technique is described in Brown and Warner [3]. To implement the test, the common stock returns for each security in the sample are computed on a monthly basis. The returns for each sample security in months -57 through -6 prior to announcement dates are regressed against the monthly returns of the market portfolio (The Standard & Poor's 500) during the corresponding calendar months. This market model procedure provides regression coefficients used to estimate the expected security return in each event-related month from -5 to $+15$.

To test the hypothesis that the average abnormal returns equal zero, we computed a t -statistic as follows:

$$t = \overline{AR}_i \cdot \sqrt{N} \left/ \left(\sum_{i=1}^N (AR_{it} - \overline{AR}_i) / (N - 1) \right)^{1/2} \right.$$

Two different control group comparisons were performed—the security market reaction of the control firms at their own proxy mailing date and the security market reaction of the control firms at the announcement of a short-term executive compensa-

²To minimize the problem of contemporaneous events occurring around the event date, the authors surveyed the *Wall Street Journal Index* for six months before and ten months after the event date for each firm. It does not appear that there was a significant amount of good news or bad news for the sample companies during these months. The listing of contemporaneous events for the sample companies is available from the authors upon request.

TABLE 1
 AVERAGE ABNORMAL RETURNS AND *t*-STATISTICS FOR EXPERIMENTAL AND CONTROL FIRMS
 (1971-1980)

Month Relative to Announce- ment	Experimental Firms at Their Announcement of a Short-Term Executive Compensation Plan			Control Firms at the Announcement of a Short-Term Executive Compensation Plan of the Experimental Firms			Control Firms at Their Proxy Mailing Date		
	Monthly Average Abnormal Returns	<i>t</i> -Value	No. of Positive Monthly Abnormal Returns	Monthly Average Abnormal Returns	<i>t</i> -Value	No. of Positive Monthly Abnormal Returns	Monthly Average Abnormal Returns	<i>t</i> -Value	No. of Positive Monthly Abnormal Returns
-5	-.009	-.342	24	.009	.379	28	-.010	-.443	25
-4	.054	3.028*	34**	.021	1.279	30	.011	.597	25
-3	.002	.0921	28	.004	.272	22	.008	.622	27
-2	.054	2.926*	32**	.022	1.498	30	.027	1.862	29
-1	.065	3.796*	33**	.010	.498	27	.018	.923	22
0	.058	4.109*	33**	.002	.163	24	.001	.054	27

+ 1	.015	.953	28	.014	.891	27	.028	1.752	30
+ 2	.001	.036	29	.009	.551	25	-.015	-.896	20
+ 3	-.004	-.144	25	.001	.095	24	.020	1.496	30
+ 4	.017	1.058	27	-.005	-.371	25	.000	.009	26
+ 5	.005	.478	26	.019	1.061	29	.001	.062	27
+ 6	.018	1.532	25	.005	.339	21	-.003	-.270	16
+ 7	.017	1.693	28	.002	.148	28	.015	1.007	29
+ 8	.022	1.647	30	.023	1.481	30	-.008	-.567	27
+ 9	.010	.901	26	-.005	-.202	20	-.018	-.829	17
+ 10	.046	2.850*	35**	.011	.961	27	.016	1.216	30
+ 11	-.011	-.462	22	-.005	-.261	25	-.007	-.384	24
+ 12	.004	.293	24	.012	.747	26	.005	.329	26
+ 13	.008	.642	27	-.009	-1.041	21	.001	.170	21
+ 14	-.017	-1.403	23	.008	.947	23	-.002	-.139	25
+ 15	.000	.000	23	.006	.462	27	.009	.772	26

*Significant at the 5 percent level.

**Thirty-one companies with positive average abnormal returns for each month in the sample of 51 firms are required for statistical significance at the 5 percent level using a binomial test.

tion plan of their associated experimental firms. These two comparisons control for the possibility that the market reaction of the experimental firms may be caused by (1) information contained in a proxy statement other than the announcement of short-term executive compensation plan adoption or (2) industry influences. Because the two groups are matched in terms of industry and calendar month, the paired comparisons should control for industry events that are unrelated to the market reaction of the announcement of short-term executive compensation plan adoption but that might affect the security market reaction for individual firms.

The average abnormal returns and the corresponding *t*-statistics for month 0 and the surrounding months for the experimental firms adopting short-term executive compensation plans and the two different control firms are presented in Table 1. For the experimental firms, the monthly average abnormal returns for months -4, -2, -1, 0, and 10 are significantly positive at the .05 level.

In contrast to the experimental firms, none of the twenty-one (month -5 to month +15) monthly average abnormal returns for the two different control groups is statistically significant for both the *t*-test and the binomial test. Thus, the market does not appear to react to a proxy effect, and the security market reaction of the experimental firms is not likely to be confounded with information (other than the announcement of the short-term executive compensation plan) typically contained in proxy statements. Furthermore, the evidence suggests that the market does not react to industry effects. Therefore, our empirical results confirm the Tehranian and Waagelein study.

Further confounding the interpretation is the statistically significant positive market reaction in month 10. In month 10, when the positive market reaction occurs, we observe that forty of the fifty-one companies in our sample announced their annual earnings. (The remaining companies in the sample announced their yearly earnings eleven months after the bonus adoption.) Since Tehranian and Waagelein showed that the stock market reaction in month 10 following the bonus plan adoption is associated with positive unexpected earnings in that month, we tested our sample to see if this hypothesis can be supported.

To test this hypothesis, we used the market earnings model adopted by Ball and Brown [1] and Gonedes [4]; and to test the null hypothesis that the average standardized unexpected earn-

TABLE 2
 AVERAGE STANDARDIZED UNEXPECTED EARNINGS PER SHARE FOLLOWING PROXY ANNOUNCEMENT
 OF SHORT-TERM BONUS COMPENSATION PLAN USING EXPECTATION MODEL

	Entire Sample	Firms with Announcements of Annual Earnings in Month 10	Firms with Announcements of Annual Earnings in Month 11
Number of firms <i>Year - 1</i>	49	40	9
Average standardized unexpected earnings <i>t</i> -value	.0426 .5686	.0862 .9621	-.1368 -.3162
Number of positive standardized unexpected earnings <i>Year 0</i>	25	21	4
Average standardized unexpected earnings <i>t</i> -value	.4026 3.9628*	.4635 3.7216*	.1062 .1762
Number of positive standardized unexpected earnings <i>Year + 1</i>	40**	31**	6
Average standardized unexpected earnings <i>t</i> -value	.2235 1.4675	.2028 1.2645	.0685 .3454
Number of positive standardized unexpected earnings	26	24	5

*Significant at the 5 percent level.

**Thirty, 25, and 7 companies with positive standardized unexpected earnings are required for statistical significance at the 5 percent level for a sample of 49, 40, and 9 companies, respectively.

ings is equal to zero, we used the methodology employed by Vermaelen [9].³ Table 2 presents the average standardized unexpected earnings (with the corresponding *t*-statistics) for years - 1, 0, and + 1. For the entire sample the average standardized unexpected earnings for year 0 (month + 10) is + .4026 (3.96); in contrast, the means for years - 1 and + 1 are + .0426 (.57) and + .2235 (1.47). From these results, the stock market reaction in month 10 following the bonus plan adoption seems to be associated with the positive standardized unexpected earnings change.

SUMMARY AND CONCLUSION

This note examines the association between short-term bonus plan adoption and stock market performance and extends the work of the Tehranian and Waegelein study [7] by controlling for proxy and industry effects. Our results are fourfold. First, significantly positive abnormal returns occur in the four months prior to bonus plan adoption and in the month of bonus plan announcement. These results are consistent with the Tehranian and Waegelein study. Second, the positive stock market reaction is not due to a proxy or industry effect. Third, the price adjustment to the information on short-term executive compensation plan adoption contained in proxy statements is not instantaneous. Fourth, firms adopting short-term compensation plans experience significantly positive abnormal returns ten months after the adoption announcement, and these returns are associated with positive unexpected earnings in that month.

³Earnings per share for each security in the sample from 1960 through 1981 were obtained from Standard and Poor's Compustat tapes. The market EPS index was taken from the Standard and Poor's statistical service. Getty Oil and Palm Beach Inc. were eliminated from our sample because the Compustat tapes failed to provide complete earnings per share data for each of the above firms for the ten years prior to the adoption of the short-term bonus plan.

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