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Author(s): Susan Chaplinsky and Greg Niehaus

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The Role of ESOPs in Takeover Contests

SUSAN CHAPLINSKY and GREG NIEHAUS*

ABSTRACT

This article examines both the shareholder wealth effects of employee stock ownership plans (ESOPs) announced by firms subject to takeover pressure and the takeover incidence of targets with and without ESOPs. Although we do not find that defensive ESOPs significantly reduce shareholder wealth on average, we identify two factors—the change in managerial and employee ownership due to the ESOP and the simultaneous announcement of other defensive tactics—that are associated with negative stock price reactions. We find that ESOPs are strong deterrents to takeover. ESOP targets that are acquired earn higher returns than targets without ESOPs, but the difference is not statistically significant.

THE GROWTH OF EMPLOYEE stock ownership plans (ESOPs) during the latter half of the 1980s has raised concerns that ESOPs are primarily used by public firms as antitakeover devices (see Scholes and Wolfson (1990)). This concern stems in part from the enactment of the Delaware takeover law in 1988 and the subsequent Polaroid decision in 1989, which are interpreted by some as making ESOPs fail-proof takeover defenses (Nasar (1989), and Crenshaw (1989)). This article is the first to jointly examine ESOP announcements by firms subject to takeover pressure (defensive ESOPs) and the subsequent takeover incidence of these firms. While earlier studies of defensive ESOP announcements report negative average stock price reactions,¹ this article and Dhillon and Ramirez (1993) report, using larger samples, insignificant average price reactions. Stock price reactions to ESOP announcements therefore are insufficient to conclude whether ESOPs are effective takeover deterrents, because ESOPs can have positive effects on share prices that can offset the negative takeover deterrent effect. For example, ESOPs may convey information that the firm is more likely to become a takeover target, they may increase premiums in successful acquisitions, or they may have other benefits such as tax savings. Hence, the primary purpose of this article is to provide evidence on the takeover deterrence of ESOPs.

*Chaplinsky is from the Colgate Darden Graduate School of Business Administration, University of Virginia, and Niehaus is from the College of Business Administration, University of South Carolina. We acknowledge the comments of David Brown, Harry DeAngelo, Larry Dann, Richard Ippolito, Richard Jeffries, Sreenivas Kamma, Rod Roenfeldt, Mike Ryngaert, Edward Snyder, René Stulz (the editor), and two anonymous referees. We thank Dave Mayers and Saeyoung Chang for their takeover-related ESOP sample and Robert Comment for his merger and tender-offer database. M. Nimalendran, Andy Terry, Bill Tucker, and Linda Van de Gucht provided valuable research assistance.

¹See Gordon and Pound (1990), Chang (1990), and Chang and Mayers (1992).

Despite the neutral average stock price reaction to defensive ESOPs, we identify two factors that reduce the probability of takeover and suggest the potential for entrenchment. Shareholder wealth decreases significantly on average when defensive ESOPs involve large increases in combined employee and managerial ownership or when ESOPs are announced simultaneously with other defensive tactics (e.g., poison pills, green mail). In these circumstances, investors believe the reduction in the probability of takeover dominates any positive effects of ESOPs.

To examine more directly the deterrent effect of ESOPs, we analyze the outcomes of control contests for targets with an ESOP to those without an ESOP, holding constant other factors, such as state takeover laws, the existence of poison pills, and the implementation of restructuring plans. We find that ESOPs are effective deterrents to takeover. The incidence of takeover for ESOP targets is roughly half that experienced by non-ESOP targets (i.e., 48 versus 85 percent). This finding takes on added significance because other defensive tactics, such as poison pills and law suits, appear to have little effect on takeover rates. Thus, ESOPs do significantly reduce the probability of takeover.

We also examine the returns earned in successful takeover contests by targets with and without ESOPs. Although this analysis is limited by small numbers of ESOP firms that are acquired (attributable in part to the effectiveness of ESOPs in deterring takeovers), contest returns for ESOP targets are higher than those for non-ESOP targets. While the difference in contest returns is economically significant, it is not statistically significant. Nevertheless, the point estimates suggest that one reason ESOP announcement date prediction errors are insignificant on average, even though ESOPs significantly reduce the probability of takeover, is that ESOPs may increase target returns in successful acquisitions.

We proceed as follows. In Section I, we describe the mechanics of a leveraged ESOP and discuss the factors that influence their effectiveness as takeover deterrents. In Section II, we analyze the stock price reactions to ESOP announcements. In Section III, we compare the takeover frequency and cumulative prediction errors over the entire control contest for samples of targets with and without ESOPs. We end with a short summary.

I. ESOPs as Takeover Deterrents

ESOPs can deter takeovers by giving control rights to parties that have a higher reservation price for tendering to a bidder (Stulz (1988)). If the parties receiving control rights are the marginal investors, then holding the number of shares outstanding constant, a bidder's acquisition cost increases and the likelihood of a takeover decreases. To predict when ESOPs are likely to be effective takeover deterrents, we first present some institutional background.

ESOPs are pension plans that can be leveraged (though they need not be) and must have the majority of its assets invested in the sponsoring firm's equity securities. These two features allow a firm to quickly place a large block of its own stock in its ESOP. When a leveraged ESOP is established,

most shares are placed in a suspense account; these shares are called unallocated shares. As the ESOP loan is repaid, shares are allocated to individual employee accounts and employees receive the associated voting rights. The trustee is required under most plan documents to vote and tender unallocated shares in a control contest in the same way that employees vote and tender allocated shares.² Since non-managerial employees typically control ESOP shares, an ESOP's effectiveness as an antitakeover device usually relies on nonmanagerial employees having high reservation prices for tendering to a bidder.

Whether an ESOP increases the reservation price of the marginal shareholder depends on the percentage of shares a bidder must obtain for control relative to the size of managerial and employee ownership. In this regard, freeze-out state takeover laws play an important role. As one example, the Delaware takeover law passed in January 1988 requires that a hostile bidder wait three years after it obtains 15 percent of the target's shares before it can take control of the target, unless its ownership share increases from less than 15 percent to more than 85 percent of nonmanagerial shares in a single transaction. By increasing the likelihood that employees or managers are the marginal shareholder in a takeover contest, freeze-out laws are likely to have increased an ESOP's effectiveness as a takeover deterrent.³

Shamrock v. Polaroid was the first case challenging an ESOP defense under the Delaware law. Since Polaroid's ESOP was upheld and Shamrock's bid failed, the case is often viewed as strengthening the deterrent effect of ESOPs. However, it should be noted that the decision enumerated several conditions that reduce the likelihood that an ESOP will violate management's duty to shareholders. One condition is that the ESOP must be planned prior to the onset of takeover activity. This precedent therefore gives bidders a legal basis to block hastily planned ESOPs as was demonstrated in the AT&T-NCR takeover contest.⁴ As a result, the effect of the Polaroid decision on takeover deterrence is ambiguous.

In addition to possibly deterring takeovers, ESOPs can have other effects as well. Stulz's (1988) model, for example, suggests that when an ESOP increases the reservation price of the marginal shareholder, the price received in a successful acquisition is increased. In analyzing the tradeoff between the deterrent effect and the price effect, Stulz suggests that the deterrent effect is more likely to dominate when the percentage of shares controlled by managers and employees is relatively high. Thus, a marginal

² Of the 86 firms responding to a questionnaire we mailed, over 80 percent require the trustee to vote and tender unallocated shares either in the same proportion or as a majority of allocated shares are voted and tendered. See Chaplinsky and Niehaus (1990) for a description of the questionnaire.

³ We focus on Delaware because a large number of our sample firms are incorporated in the state, but many other states have adopted similar laws. See Karpoff and Malatesta (1989) and Comment and Schwert (1993).

⁴ See *Mergers and Acquisitions*, July/August 1991, p. 11. The other two conditions cited by the court are whether employees control the ESOP shares and whether the ESOP is shareholder neutral in that employees paid fair market value for their shares.

increase in managerial plus employee control is predicted to increase value when managerial and employee control is low, decrease value over intermediate levels, and not affect value once control reaches a level at which management is effectively entrenched. ESOP announcements may also convey to the market an increased likelihood that the firm will become a target. Finally, there are noncontrol benefits: ESOPs can increase productivity (Conte and Svejnar (1989)) and decrease corporate taxes (Scholes and Wolfson (1990) and Chaplinsky and Niehaus (1990)). If the deterrent effect dominates these other effects, then an ESOP is predicted to decrease shareholder wealth.

II. Stock Price Reactions to ESOP Announcements

A. Sample Description

We search the *NEXIS Newswire* (WIRES) and major paper (MAJPAP) files from 1980 through 1990 for all disclosures with the term “ESOP” or “employee stock ownership plan” appearing in their text. Leveraged and non-leveraged ESOPs are included in the sample, but tax credit ESOPs (TRASOPs and PAYSOPs), which were eliminated by the 1986 Tax Reform Act, are excluded. ESOPs used as part of leveraged buyouts and ESOPs announced by firms with insufficient return data on the Center for Research in Security Prices (CRSP) files are also excluded. This search produces 278 announcements of new ESOPs or additions of stock to existing ESOPs. One hundred fifty-five (55.8 percent) of the announcements occur in 1988 and 1989, the two years following passage of the Delaware law.

To reduce the possibility that the announcement date price reaction also reveals news of a takeover bid, we consider separately the stock price reactions to ESOP announcements by firms already subject to takeover activity (defensive ESOPs). We determine the existence of takeover activity by reading the *Wall Street Journal Index* and relevant *Wall Street Journal* articles beginning one year before each ESOP announcement and extending one year after the announcement or through completion of the control contest. A firm is classified as being subject to takeover activity if it is the actual or rumored target of a takeover or the object of a 13D filing in which the filer indicates intentions of obtaining control. Of the 278 announcements, 96 (34.5 percent) have takeover activity in the year prior to the ESOP announcement.

B. Shareholder Wealth Effects

We assess the impact of ESOP announcements on shareholder wealth using standard event study methodology. We compute prediction errors using net-of-market returns (the firm’s return minus the CRSP equally weighted market index).⁵ We measure the wealth effect due to the announcement by the two-day prediction error from day 0 to day 1, $PE[0, 1]$, where day 0 is the day the ESOP announcement appears on the *NEXIS Newswire*.

⁵The results are unaffected by the use of market-model prediction errors. The standard deviation of the prediction errors is estimated over the period day -240 to day -40 .

We initially distinguish ESOP announcements that occur without other news announcements about the firm (isolated announcements) from announcements that include simultaneous disclosures. Since stock price reactions to isolated ESOP announcements are less likely to be confounded by other information effects, they provide an important baseline.

B.1. Average Two-Day Announcement Effects for Isolated ESOP Announcements

Table I shows average prediction errors, $APE[0, 1]$, for subsets of isolated ESOP announcements. Results for firms subject to different classifications of takeover pressure are listed in Panel A. The first row indicates that there is an insignificant average prediction error of -0.37 percent for ESOPs announced by firms subject to either a bid, a 13D filing, or a rumor of a bid in the previous year. Rows 2 and 3 indicate that the insignificant stock price reaction is not due to the inclusion of rumors or 13D filings. This evidence suggests that, on average, investors do not perceive a reduction in the probability of takeover to be the predominate effect of an ESOP.⁶

The evidence in Panel B suggests that neither the Delaware law passed in January 1988 nor the Polaroid decision in January 1989 by themselves increases the likelihood that deterrence dominates. The average prediction error for defensive ESOPs announced by firms subject to the Delaware law is -0.65 percent, but it is insignificantly different from zero. Firms announcing defensive ESOPs after the Polaroid decision have an insignificant average prediction error of 0.04 percent.

We now consider whether the stock price reactions are related to the ownership change brought about by the ESOP. Stulz (1988) suggests that an ESOP's influence on shareholder wealth depends not only on the increase in ESOP stockholdings but also on the level of managerial and employee control at the time of the announcement. In particular, Stulz predicts that an increase in managerial plus employee control increases value when their control is low, decreases value over intermediate levels, and does not affect value once their control reaches a level at which management is effectively entrenched. We therefore calculate three ownership variables:

$\Delta ESOPOWN$ is the announced increase in ESOP shares as a percentage of the total outstanding equity shares,

$EMPOWN$ is the preannouncement stockholdings of existing ESOP plans and other non-ESOP stockholdings of employees (e.g., pension, profit-sharing, or thrift plans) as a percentage of outstanding equity,⁷ and

⁶We note that this finding is not due to ESOPs being inconsequential events, as 25 percent of the 96 isolated ESOP announcements have two-day prediction errors less than -3.1 percent and 25 percent have two-day prediction errors in excess of 2.1 percent.

⁷Employee ownership is determined from information gathered from the *Wall Street Journal Index*, *Nexis*, *Value Line*, or proxy statements.

Table I

Average, Median, and Percentage Positive of Two-Day Prediction Errors for Selected Samples of Isolated ESOP Announcements between 1980 and 1990

BEGOWN is the sum of managerial ownership and employee ownership before the ESOP announcement, and *ENDOWN* is the sum of *BEGOWN* and Δ *ESOPOWN*. Δ *ESOPOWN* is the increase in ESOP stockholdings due to the ESOP announcement.

Panel	Takeover Activity Prior to ESOP	Other Conditions	N	Average (%)	t-Statistic H_0 : Average = 0	Median (%)	Percentage Positive
A	Bid, 13D, or Rumor		69	-0.37	-0.58	-0.39	44.9
	Bid or 13D		54	-0.13	-0.21	-0.40	44.4
	Bid		14	-0.96	-0.99	-0.46	28.6
B	Bid, 13D, or Rumor	Subject to DE Law	24	-0.65	-0.47	-0.39	45.8
		After Polaroid decision	26	0.04	0.06	-0.16	46.2
C	Bid, 13D, or Rumor	<i>BEGOWN</i> < 10%	27	-1.27	-1.78	-1.16	40.7
		<i>ENDOWN</i> > 10%					
		<i>BEGOWN</i> < 10%	16	-3.05	-3.05	-2.20	31.3
		<i>ENDOWN</i> > 15%					
D	None	Subject to DE Law	159	0.94	3.70	0.69	58.5
		<i>BEGOWN</i> < 10%	48	1.84	5.11	1.78	72.9
		<i>ENDOWN</i> > 15%	15	2.97	3.72	1.85	80.0

MGROWN is the percentage of stock held by officers and directors, which is obtained from proxy statements or *Value Line* at the nearest available point before the ESOP announcement date.

For firms with preferred or dual stock, ESOP and managerial ownership are computed as a percentage of total votes. Using the three variables above, we define the variables used in our analysis:

$$BEGOWN = EMPOWN + MGROWN, \text{ and}$$

$$ENDOWN = BEGOWN + \Delta ESOPOWN.$$

The results in Panel C of Table I indicate that when the ESOP moves employee plus managerial ownership from below 10 percent to above 10 percent the ESOP announcement results in a -1.27 percent average prediction error, which is significant at the 10 percent level. Row 2 indicates that a change in employee plus managerial ownership from below 10 percent to above 15 percent results in a significant average prediction error of -3.05 percent. Thus, the deterrent effect dominates when the ESOP moves employee plus managerial ownership from a low level to a relatively high level, a finding that is consistent with Stulz (1988).

Panel D reports the results for firms without prior takeover activity. For the entire sample of such firms, the ESOP announcement results in a 0.94 percent average prediction error, which is statistically significant at the 5 percent level. This positive stock price reaction could be due to several factors, including the ESOP revealing that the firm is more likely to become a takeover target. The average stock price reactions for two subsets of firms (reported in rows 2 and 3) are consistent with this explanation. In particular, of the firms without prior takeover activity, those that are subject to the Delaware law have a significant average prediction error of 1.84 percent and those for which the ESOP increases combined employee ownership and managerial ownership from below 10 percent to above 15 percent have a significant average prediction error of 2.97 percent. Since these conditions are also the conditions when ESOPs are more likely to be effective deterrents, the evidence is consistent with the ESOP signaling that the firm is more likely to be a takeover target. Of the 182 firms in our sample that adopted ESOPs with no prior takeover activity, 10.4 percent become targets in the year following the ESOP announcement. By comparison, Mitchell and Lehn (1990) report that 19.7 percent of firms listed in *Value Line* in 1981 become hostile targets over an eight-and-a-half-year period. If the distribution of takeover activity is uniform over time, only 2.3 percent of Mitchell and Lehn's firms would have become targets in any given year. Thus, it appears that ESOP firms are indeed more likely to become targets than firms in general.

B.2. Average Prediction Error for ESOPs Announced Simultaneously with Other Defensive Tactics

Limiting the shareholder wealth tests to isolated events eliminates 19 ESOPs that are announced simultaneously with other defensive tactics. This

raises the concern that the firms most opposed to a takeover are excluded. The 19 announcements include four poison pills, nine restructurings, and six targeted repurchases.⁸ The average two-day prediction error for these announcements is -3.23 percent, which is statistically significant ($t = -4.42$). Clearly, the entire stock price reaction to these announcements cannot be attributed solely to the ESOP. Nevertheless, the large decline, on average, in shareholder wealth at these announcements suggests that the existence of other takeover devices causes investors to perceive the reduction in the probability of takeover to dominate any positive effects of ESOPs.

B.3. Regression Analysis of Prediction Errors

To examine further the factors associated with prediction errors, we report a cross-sectional regression of the two-day prediction errors. The analysis includes both isolated announcements and announcements made simultaneously with other news. The independent variables are:

ΔOWN_i ($i = 1, 2, 3$) is the change in ownership structure due to the ESOP (defined below).

DELOW equals 1 if the firm is subject to the 1988 Delaware takeover law and 0 otherwise.

TOACT equals 1 if the firm is subject to takeover activity before the ESOP announcement and 0 otherwise.

OPEN_MKT equals 1 if the ESOP acquires shares through an open market repurchase and 0 otherwise.

$\log(EQUITY)$ is the natural logarithm of the market value of equity prior to the announcement.

DEF_ACT equals 1 if the ESOP is announced simultaneously with other defensive actions and 0 otherwise.

OTH_NEWS equals 1 if the ESOP is announced simultaneously with news other than a defensive tactic and 0 otherwise.

The *TOACT* variable is also interacted with the ownership variables and *DELOW*. The regression is estimated using weighted least squares where the weight is the inverse of the standard deviation of the prediction errors over the estimation period.

To test for the nonmonotonic relation between value and ownership posited by Stulz (1988), we use Wruck's (1989) piece-wise linear model. The ownership variable of concern is the sum of managerial and employee ownership, denoted *OWN*, and P_1 and P_2 indicate the points separating the ownership

⁸Eight other announcements occurred simultaneously with other news: two dividend increases, one earnings announcement, two announcements that takeover bids had been withdrawn, two announcements of possible tender offers, and one announcement that a bidder increased its stake.

intervals. The specification requires three ownership variables defined as follows:

$$\begin{array}{lll}
 OWN1 = OWN & \text{if} & OWN < P_1 \\
 = P_1 & \text{if} & OWN \geq P_1; \\
 OWN2 = 0 & \text{if} & OWN < P_1 \\
 = OWN - P_1 & \text{if} & P_1 \leq OWN < P_2 \\
 = P_2 - P_1 & \text{if} & OWN \geq P_2; \\
 OWN3 = 0 & \text{if} & OWN < P_2 \\
 = OWN - P_2 & \text{if} & OWN \geq P_2.
 \end{array}$$

Whereas Stulz's hypothesis relates equity value to levels of ownership, the dependent variable in our regression (prediction errors) measures changes in equity values. Therefore, the ownership variables included in the regression equal the post-ESOP announcement value for OWN_i minus the pre-announcement value for OWN_i , denoted ΔOWN_i , $i = 1, 2, 3$.⁹

The following equation with turning points $P_1 = 10$ percent and $P_2 = 25$ percent is representative of the results (t -statistics are in parentheses, $N = 198$, Adjusted $R^2 = 0.16$).¹⁰

$$\begin{aligned}
 PE[0, 1]_i &= 3.09 \\
 &(1.68)
 \end{aligned}$$

$$\begin{array}{lll}
 +0.48 \ TOACT_i & +1.77 \ DELAW_i & -2.33 \ TOACT * DELAW_i \\
 (0.30) & (1.54) & (-1.43) \\
 +0.13 \ \Delta OWN1_i & +0.24 \ \Delta OWN2_i & -0.11 \ \Delta OWN3_i \\
 (0.73) & (1.90) & (-1.60) \\
 -0.00 \ TOACT * \Delta OWN1_i & -0.49 \ TOACT * \Delta OWN2_i & -0.26 \ TOACT * \Delta OWN3_i \\
 (-0.02) & (-2.63) & (-1.53) \\
 -3.51 \ DEF_ACT_i & +4.40 \ OTH_NEWS_i & -0.73 \ \log(EQUITY)_i \\
 (-2.28) & (2.87) & (-2.90) \\
 +2.41 \ OPEN_MKT_i & & \\
 (2.97) & &
 \end{array}$$

⁹For example, if the ESOP increases employee plus managerial ownership from 5 to 30 percent, and the turning points are set at 10 and 25 percent, then $\Delta OWN1 = 5$, $\Delta OWN2 = 15$, and $\Delta OWN3 = 5$.

¹⁰The results are insensitive to a wide range of alternative specifications. For example, the results are similar for regressions estimated with any combination of turning points, $P_1 = 5$ or 10 percent and $P_2 = 20$ or 25 percent. Additionally, we examine other variables that are not reported here, including the type of stock held by the ESOP (preferred or common stock), whether the firm issued new shares, whether the ESOP is leveraged or nonleveraged, whether the ESOP is funded by terminating an overfunded pension plan, and the leverage ratio of the adopting firm. The coefficients on these variables generally are not statistically significant, and our main findings are unaltered by their inclusion. Also, similar results are obtained from regressions using only isolated ESOP announcements. Given Comment and Schwert's (1993) finding of a decline in the takeover rate in 1990, we include a dummy for the year 1990, which is also interacted with $TOACT$, but our main findings are unaltered.

The regression results generally confirm the previous univariate results. The coefficient on *TOACT* is insignificant, which suggests that takeover activity by itself is not associated significantly with prediction errors. While the coefficient on the interaction term *TOACT * DELAW* is negative, it is not statistically significant at the 10 percent level. Consistent with previous studies of poison pills, defensive restructuring, and targeted repurchases, the coefficient on *DEF_ACTION* is negative (-3.51 percent) and significant.¹¹

The ownership structure change due to the ESOP is significantly related to the stock price reaction for both the takeover and nontakeover related announcements. The coefficient of $\Delta OWN2$ is positive and significant at the 5 percent level, suggesting that, for firms not subject to takeover pressure, value increases with managerial and employee control in the 10 to 25 percent range. Beyond the 25 percent level, however, the marginal effect of additional ownership increases is negative for firms not subject to takeover pressure as the coefficient of $\Delta OWN3$ is -0.11 .

For firms subject to takeover pressure, the marginal effect of ownership changes is the sum of the coefficients of the respective ownership variables. Thus, ESOPs that push employee plus managerial ownership into the 10 to 25 percent range are associated with decreases in value as the sum of coefficients on the $\Delta OWN2$ variables is -0.25 . Moreover, changes that push employee and managerial ownership above 25 percent are also associated with value decreases as both $\Delta OWN3$ variables have negative coefficients.

In sum, the stock price reaction evidence suggests that ESOPs are effective deterrents when ESOPs increase combined employee and managerial ownership from a low level to a relatively high level and when ESOPs are announced simultaneously with other defensive tactics. In these select cases, investors perceive ESOPs to significantly reduce the probability of takeover and infer entrenchment as the motivation for the ESOP. However, the stock price reaction evidence is not sufficient to conclude whether ESOPs are effective takeover deterrents in general. Nor does the neutral wealth effect imply that the deterrent effect of ESOPs is unimportant. One possibility is that the negative deterrent effect is offset by the influence of ESOPs on takeover prices in successful acquisitions, by the ESOP revealing an increased likelihood of a bid, or by the noncontrol benefits of ESOPs. Therefore, to resolve whether ESOPs have an economically significant effect on the probability of takeover, we examine the outcomes of control contests of targets with ESOPs relative to targets without ESOPs.

IV. Evidence on the Outcome of Control Contests Involving ESOPs

A. Samples

For comparison purposes, a sample of 120 targets without ESOPs is obtained from a database of unnegotiated cash tender offers to be followed by

¹¹See Ryngaert (1988), Dann and DeAngelo (1988), and Mikkelsen and Ruback (1985), respectively.

a merger from 1983 to 1989. The data are an updated version of the sample used in Comment and Jarrell (1987). Unnegotiated tender offers are offers initiated without a written agreement between the target management and the bidder. As a result, the sample of targets without ESOPs consists of control contests that are predominately "unfriendly."¹² The offers include tender offers in which a bidder does not specify a maximum number of shares to be acquired (any or all offers) and tender offers in which a bidder specifies a maximum number of shares to be acquired and stipulates its intention to purchase the remaining shares in a cleanup merger. Thus, the data excludes partial tender offers in which the bidder does not indicate intentions of taking control.

To make the ESOP targets comparable to the non-ESOP targets, we restrict the ESOP sample to those firms that receive an explicit takeover bid either prior or subsequent to the ESOP announcement. This restriction eliminates ESOP targets that are classified as being under takeover pressure in the earlier analysis because of a rumor of a bid or a 13D filing, but for which an explicit bid did not surface. Thus, relative to the sample of isolated defensive ESOPs examined earlier, the ESOP outcome sample likely consists of targets that are under more intense takeover pressure. If a bid expired prior to the ESOP announcement, then the firm is not included in the analysis. There are 42 ESOP targets satisfying these conditions with complete data.¹³

Table II provides information about the outcome of the contests for the ESOP firms and the non-ESOP firms where the outcome is determined by reading the *Wall Street Journal Index* and relevant *Wall Street Journal* articles. Forty-eight percent of the ESOP targets experience a change in control, compared to 85.0 percent of the non-ESOP targets, a difference that is statistically significant at the 1 percent level. We do not find, however, that the average level of combined managerial and employee ownership differs significantly between the ESOP firms that are acquired (20.3 percent) and those that are not acquired (23.9 percent).

Table II also reports summary statistics for the cumulative prediction errors for ESOP and non-ESOP targets for each outcome category. Cumulative prediction errors are calculated from 5 days before the bid through 5 days after the date on which the outcome is reported in the *Wall Street Journal*. If an outcome date cannot be identified, we use 120 trading days

¹² While unnegotiated tender offers are the appropriate control group for ESOP targets (whose actions indicate strong opposition to an offer), it is important to recognize that this sample differs from others in the literature. For example, Comment and Schwert's (1993) sample includes negotiated tender offers and mergers, i.e., contests where target management is more likely to be favorably disposed to the offer.

¹³ Of the 42 ESOP targets in the outcome sample, 22 (52.5 percent) announced other defensive tactics with their ESOP or increased combined employee and managerial ownership from below 10 percent to above 15 percent. The corresponding percentage of the 96 firms with prior takeover activity is 39.6 percent. While this suggests that the outcome sample has a greater proportion of firms for which the deterrent effect dominates, the difference in proportions is not significant at the 10 percent level (chi-square = 1.95, p -value = 0.16).

Table II
Takeover Rates for ESOP and Non-ESOP Targets Subject to
Bids and Compounded Cumulative Prediction Errors for the
Entire Control Contest

Cumulative Prediction Errors (CPE) are calculated from 5 days before the bid through 5 days after the date on which the outcome is reported in the *Wall Street Journal*. If an outcome date cannot be identified, we use 120 trading days after the latter of the ESOP announcement date or the bid date as the outcome date.

Outcome of Contest	ESOP Targets	Non-ESOP Targets
Management Loses Control		
Number	20	102
Percentage of Total	47.6	85.0
Chi-square statistic (p -value) for H_0 : proportion of ESOP targets = proportion of non-ESOP targets	23.4 (0.01)	
Mean CPE (%)	45.7	33.7
Median CPE (%)	42.9	33.8
Standard deviation of CPE (%)	51.8	28.5
Percentage of CPE > 0	80.0	93.1
t -statistic (p -value) for H_0 : Mean CPE for ESOP targets = Mean CPE for non-ESOP targets	1.0 (0.32)	
Management Retains Control		
Number	22	18
Percentage of total	51.2	15.0
Mean CPE (%)	2.8	17.8
Median CPE (%)	-3.9	25.5
Standard deviation of CPE (%)	29.4	27.5
Percentage of CPE > 0	45.5	77.8
t -statistic (p -value) for H_0 : Mean CPE for ESOP targets = Mean CPE for non-ESOP targets	-1.7 (0.11)	

after the latter of the ESOP announcement date or the bid date as the outcome date.¹⁴ ESOP targets that are acquired have higher returns over the entire control contest on average (45.7 percent) than non-ESOP targets (33.7 percent). Although the difference in returns is clearly large enough to be economically significant, it is not statistically significant ($t = 1.01$).

B. Logit Analysis of Probability of Takeover

We estimate a logit model where the dependent variable is the probability of a control change divided by the probability of no control change. In addition

¹⁴ We report results for compounded prediction errors, where prediction errors equal the return minus the CRSP equal-weighted market portfolio. We also use noncompounded returns, market model prediction errors, and a value-weighted market portfolio with no substantial change in the results. Petro-Lewis, an ESOP firm in financial distress, has a -96.2 percent return over the entire contest and hence is dropped from the analysis.

to some of the previously defined variables, the logit model includes the following variables:

POISON_PILL equals 1 if a firm adopts a poison pill during the contest and 0 otherwise,

RECAP_PLAN equals 1 if a firm proposes a recapitalization or restructuring plan during the contest and 0 otherwise,

LEGAL_ACTION equals 1 if the target took legal action to block a bidder during the contest and 0 otherwise,

FAIR_PRICE equals 1 if a target is incorporated in a state with a fair price law and 0 otherwise,

FREEZE_OUT equals 1 if a target is incorporated in a state with a freeze-out law and 0 otherwise, and

CONTROL_SHARE equals 1 if a target is incorporated in a state with a control share law and 0 otherwise.

The first three variables control for other firm-specific defensive tactics, which could indicate managerial resistance. The three state takeover laws control for differences in the legal environment across states (see Karpoff and Malatesta (1989)). Although these classifications control broadly for the type of law, they ignore potential differences in the laws within each category.¹⁵

The focus of the logit analysis is the post-ESOP level of employee ownership, which equals the pre-ESOP employee ownership plus the change in employee ownership due to the ESOP ($EMPOWN + \Delta ESOPOWN$). If higher levels of employee ownership decrease the probability of takeover, the coefficient on this variable should be negative.¹⁶

The results are reported in Table III. All three specifications indicate that employee ownership is negatively associated with the likelihood of takeover. Further, there is little sensitivity to how employee ownership is measured. If the employee ownership variable is replaced by a dummy variable indicating whether the target has an ESOP or if employee ownership and managerial

¹⁵Control share laws require target shareholders to preapprove the acquisitions of voting rights above a specified level of control. Fair price laws regulate the back-end price of two-tier tender offers and prohibit business combinations by interested shareholders unless prior approval is granted by a supramajority of the target's shareholders or shareholders receive the highest of several possible front-end prices. Freeze-out laws, such as the Delaware law, prohibit business combinations by hostile bidders for a specified period unless the bidder can obtain a supramajority of disinterested shareholders' votes. For a more detailed discussion, see Karpoff and Malatesta (1989).

¹⁶The level of employee ownership, as opposed to the change due to the ESOP, is used as an independent variable in this analysis and the subsequent analysis of contest returns, because contest outcomes and returns are likely to depend on the total level of ownership, not the change due to an ESOP announcement that may or may not have occurred during the contest. In contrast, the earlier analysis of announcement date prediction errors uses the change in employee ownership as an independent variable because the focus of that analysis is how share prices respond to ESOP announcements.

Table III
Logit Analysis of Probability of Takeover for Pooled Sample of 42 ESOP and 120 Non-ESOP Control Contests Occurring between 1980 and 1990

EMPOWN + Δ *ESOPOWN* is the post-ESOP percentage stockholdings of employees; *MGROWN* is the percentage stockholdings of officers and directors; *POISON_PILL* is 1 if the firm has a poison pill and 0 otherwise; *RECAP_PLAN* is 1 if the firm announced a recapitalization plan during the control contest and 0 otherwise; *LEGAL_ACTION* is 1 if the target took legal action against the bidder and 0 otherwise; *FAIR_PRICE* is 1 if the firm is incorporated in a state with a fair price takeover law and 0 otherwise; *FREEZE_OUT* is 1 if firm is incorporated in a state with a freeze-out takeover law and 0 otherwise; *CONTROL_SHARE* is 1 if the firm is incorporated in a state with a control share takeover law and 0 otherwise; and $\log(EQUITY)$ is the natural logarithm of the market value of equity.

Independent Variable	Mean of Independent Variable	Dependent Variable = $\log(\text{prob}(\text{change in control})/\text{prob}(\text{no change in control}))$	
		Coefficient Estimate (<i>p</i> -value)	
<i>INTERCEPT</i>	1.00	5.44 (0.01)	4.35 (0.04) 4.73 (0.04)
<i>EMPOWN</i> + Δ <i>ESOPOWN</i>	3.63	-0.09 (0.01) [-0.02]	-0.09 (0.01) [-0.02] [-0.02]
<i>MGROWN</i>	7.90	0.01 (0.70) [0.00]	-0.01 (0.74) [-0.00] [-0.00] (0.71) [-0.00]

Table III—Continued

Dependent Variable = $\log(\text{prob}(\text{change in control})/\text{prob}(\text{no change in control}))$			Coefficient Estimate (<i>p</i> -value)	
Independent Variable	Mean of Independent Variable	[Partial Derivative of Probability of Change in Control with Respect to Independent Variable Evaluated at Means]		
$\log(EQUITY)$	12.72	-0.30 (0.06) [-0.05]	-0.20 (0.26) [-0.03]	-0.22 (0.21) [-0.04]
RECAP_PLAN	0.28		-0.79 (0.09) [-0.14]	-0.69 (0.15) [-0.12]
POISON_PILL	0.54		-0.60 (0.99) [-0.00]	-0.05 (0.92) [-0.01]
LEGAL_ACTION	0.27		-0.07 (0.89) [-0.01]	-0.16 (0.75) [-0.03]
FAIR_PRICE	0.10			0.28 (0.72) [0.05]
FREEZE_OUT	0.27			-0.46 (0.30) [-0.08]
CONTROL_SHARE	0.08			0.51 (0.57) [0.09]
P-Value for chi-square test of the model		0.01	0.01	0.01

ownership are aggregated into one measure, the effect of employee ownership remains negative and statistically significant. The logit analysis clearly indicates that employee ownership is associated significantly with a lower probability of takeover.

Table III also reports the partial derivatives for each of the independent variables evaluated at the means of the independent variables, which are given in the first column. For a firm at the sample mean, an increase in employee ownership of 10 percent reduces the probability of takeover by approximately 0.20, suggesting that the deterrent effect of employee ownership is economically significant.

Interestingly, ESOPs appear to be more effective takeover deterrents than other defensive tactics. Although over half of the firms have poison pills, the logit results do not indicate that poison pills have a significant effect on the probability of takeover. Comment and Schwert (1993) find similar results. Jarrell (1985) reports that 85 percent of targets that take legal action against a bidder to prevent takeover are ultimately taken over. The high takeover rate suggests that legal action is not effective in reducing the probability of takeover and thus the insignificant coefficient for *LEGAL_ACTION* is consistent with Jarrell's previous finding. In contrast, the results for *RECAP_PLAN* indicate that the implementation of a restructuring plan during the control contest significantly reduces the probability of takeover. Although ESOPs often appear to be connected with restructuring plans, the actual incidence of restructuring plans is similar between the ESOP and non-ESOP targets (approximately 25 percent of the contests involve restructuring plans.) Thus, our evidence is consistent with Denis (1990), who reports a low takeover rate (30 percent) for firms undertaking defensive repurchases.

C. Stock Price Reactions through Contest Outcome

The previous analysis indicates that ESOPs are effective takeover deterrents. Despite this finding, the stock price reaction to defensive ESOP announcements is not statistically different from zero on average. One explanation is that ESOP targets earn higher returns than non-ESOP targets if the firm is acquired. To examine this issue, we compare equity returns of ESOP and non-ESOP targets in successful takeovers using regression analysis. Since only successful takeovers are analyzed, the number of ESOP targets in this analysis is reduced to 20. In addition to previously defined variables, we include a dichotomous variable, *MULTIPLE_BIDDERS*, to indicate whether the contest has more than one bidder. Following Stulz, Walkling, and Song (1990), we use a square root transformation of the ownership variables, although a linear specification yields similar results. The regression is estimated using weighted least squares where the weight is the inverse of the standard deviation of the cumulative prediction error.

The results are reported in Table IV. The coefficient on $SQRT(EMPOWN + \Delta ESOPOWN)$ is positive but insignificantly different from zero in each of the specifications. Similar results are obtained if a dummy variable indicat-

Table IV
Regression Analysis of Cumulative Prediction Errors from 5
Days before Bid through 5 Days after the Outcome for 122
Control Contests Occurring between 1980 and 1990

$SQRT(EMPOWN + \Delta ESOPOWN)$ is the square root of the post-ESOP percentage stockholdings of employees; $SQRT(MGROWN)$ is the square root of the percentage stock holdings of officers and directors, and $\log(EQUITY)$ is the natural logarithm of the market value of the target's equity. The dichotomous (zero-one) variables are: *POISON_PILL* is 1 if the firm has a poison pill; *RECAP_PLAN* is 1 if the firm implements a restructuring plan during the control contest; *LEGAL_ACTION* is 1 if the target takes legal action against the bidder; *MULTIPLE_BIDDERS* is 1 if there is more than one bidder in the contest; *FAIR_PRICE* is 1 if the firm is incorporated in a state with a fair price takeover law; *FREEZE_OUT* is 1 if the firm is incorporated in a state with a freeze-out takeover law; and *CONTROL_SHARE* is 1 if the firm is incorporated in a state with a control share takeover law. The regression is estimated using weighted least squares where the weight is the inverse of the standard deviation of the cumulative prediction error. *t*-statistics are in parentheses.

Independent Variable	No. of Non-Zero Observations	Coefficient Estimates		
		(t-Statistics)		
<i>INTERCEPT</i>	122	57.68 (1.26)	47.89 (4.80)	76.58 (1.62)
<i>SQRT(EMPOWN + ΔESOPOWN)</i>	20	1.16 (0.46)	1.14 (0.48)	1.03 (0.40)
<i>SQRT(MGROWN)</i>	122	-7.38 (-2.77)	-8.73 (-3.36)	-8.86 (-3.28)
$\log(EQUITY)$	122	-1.43 (-0.41)		-1.82 (-0.52)
<i>MULTIPLE_BIDDERS</i>	93			-8.32 (-1.00)
<i>RECAP_PLAN</i>	28		-7.08 (-0.87)	-7.00 (-0.84)
<i>POISON_PILL</i>	63	19.53 (2.70)	12.51 (1.64)	14.30 (1.82)
<i>LEGAL_ACTION</i>	31		7.00 (0.85)	7.89 (0.94)
<i>FAIR_PRICE</i>	14		-31.66 (-2.68)	-32.44 (-2.72)
<i>FREEZE_OUT</i>	30		2.71 (0.35)	1.86 (0.24)
<i>CONTROL_SHARE</i>	11		17.76 (1.49)	18.11 (1.51)
Adjusted R^2		0.12	0.15	0.15

ing the existence of an ESOP is used in the regression instead of the employee ownership variable. The positive coefficient on employee shareholdings in each specification parallels the finding in Table II of higher mean contest returns for ESOP targets versus non-ESOP targets that are acquired. Thus, the point estimates support the explanation that the insignificant

average prediction errors to defensive ESOP announcements are due to the deterrent effect being offset by higher contest returns in successful acquisitions. The lack of statistical support for this explanation may be due to the small number of ESOP firms that are acquired, which is due in part to ESOP's effectiveness in deterring takeovers.

The coefficient for *POISON_PILL* is positive and statistically significant in several of the specifications, suggesting that takeover prices are higher in contests involving poison pills. The positive coefficient is consistent with poison pills giving management greater bargaining power in takeover contests (see also Comment and Schwert (1993)). Of the three types of takeover law we examine, only fair price laws appear to have a significant influence on contest returns.

In some instances our results differ from previous studies that also examine the determinants of takeover gains. For example, we find the coefficient on managerial ownership is negative and statistically significant, whereas Stulz, Walkling, and Song (1990) report a significant positive coefficient in contests involving multiple bidders. One possible explanation is that managers with large ownership stakes are less likely to hold out for higher prices in fear that the offer may fall through and they will lose the appreciation on their shares.¹⁷

The coefficient on *MULTIPLE_BIDDERS* is also negative but is not significantly different from zero. Other studies typically find a positive effect of multiple bidders on contest returns (see for example, Bradley, Desai, and Kim (1988) and Comment and Schwert (1993)). The difference in the results is most likely attributable to the use of unnegotiated tender offers as the non-ESOP control sample, which reduces the cross-sectional variation in the *MULTIPLE_BIDDERS* variable. For example, 78 percent (93 out of 120) of our contests involve multiple bids compared to 24 percent of Comment and Schwert's (1993) sample. Thus, our exclusion of "friendly" offers eliminates many single bid contests (see footnote 12). It also suggests that the previous results for multiple bidders should be reexamined with respect to the issue of friendly and unfriendly offers.

V. Summary

This article examines whether ESOPs are effective deterrents to takeover. Whereas previous evidence examining stock price reactions to ESOP announcements indicates that stock prices decrease on average when ESOPs

¹⁷Another potential explanation suggested in Stulz, Walkling, and Song (1990) is that higher managerial ownership gives greater bargaining power to target management in negotiating the terms of a takeover. Consequently offers are more likely to be friendly and thus takeover premia lower when managerial ownership is high. This explanation suggests that the effect of management ownership on contest returns differs between friendly and hostile offers. This explanation does not seem to explain our results, however. If, following Stulz, Walkling, and Song (1990), we estimate the model using only multiple bidder contests (as an indication of hostile offers), the coefficient on managerial ownership is still negative and statistically significant.

are announced by firms subject to takeover pressure, our results for a larger sample indicate neutral wealth effects on average. From this evidence it is not possible to determine whether ESOPs are, in general, effective takeover deterrents.

To resolve whether ESOPs have an economically significant effect on the probability of a takeover, we compare the takeover incidence for targets with and without ESOPs. The results provide strong evidence that ESOPs do have an important deterrent effect. ESOPs significantly reduce the probability of takeover even after controlling for state takeover laws and other defensive tactics. Moreover, the effect of an ESOP on the likelihood of takeover is greater than the effect of other defensive tactics such as poison pills and legal actions.

Although we find that ESOPs are effective deterrents to takeover, the overall evidence does not suggest that ESOPs are in general detrimental to shareholders' interests. The insignificant average stock price reaction to defensive ESOPs suggests, in light of the large reduction in the probability of takeover, that ESOPs provide positive benefits to shareholders. Our analysis of contests returns suggests that shareholders potentially benefit from defensive ESOPs by receiving higher prices for targets that are successfully acquired.

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