

## The effect of stock option repricing on employee turnover\*

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### Abstract

We examine whether repricing underwater stock options reduces executive and overall employee turnover using a sample of firms that reprice stock options in 1998 and a sample of firms with underwater stock options that choose not to reprice. We find little evidence that repricing affects *executive* turnover. However, using forfeited stock options to proxy for *overall employee* turnover, we find that 1999 employee turnover is negatively related to the 1998 repricing, suggesting that repricing helps prevent turnover due to underwater options. We find no evidence that the relation between turnover and repricing differs between high technology and nonhigh technology firms.

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## **1. Introduction**

This study examines whether repricing “underwater” employee stock options decreases executive and overall employee turnover. Turnover is costly for firms. Compensation consultants have estimated the costs of turnover, including termination costs, costs of hiring and training a replacement, and lost productivity, at 50% to 200% of an employee’s annual salary (Compensation & Benefits Review, 1997; Fitz-enz, 1997; Business & Health, 1998). Firms have struggled to retain employees in the face of these high costs and tight labor markets.

A survey by William M. Mercer Inc. identifies dissatisfaction with compensation as a primary reason why employees leave jobs in high turnover fields (Workforce, 1998). A key element of a compensation package for executives and nonexecutive employees can be stock options (Core, Guay and Larcker, 2003). Prior research suggests that firms use stock options for retention (Kole, 1997; Oyer and Schaefer, 2001; Oyer, 2001). But, options’ effectiveness for this purpose can fall when the stock price drops below the option’s exercise price, and option value declines, leaving the option “underwater.” When this occurs, employees may leave. To prevent this, companies reprice options by lowering their exercise price.

Repricing is controversial. Critics claim that it rewards employees for poor performance at the expense of other shareholders (Bryant, 1998; Moore, 1999; Reingold, 1999), and research provides evidence that repricing executive stock options follows poor firm performance (Brenner et al., 2000; Chance et al., 2000). However, firms repricing options insist they do so to retain valuable employees. Grein et al. (2002) find positive and significant stock returns surrounding repricing announcements in Canada, and that those returns are higher when repricing is motivated by employee retention. Given this controversy, the debate regarding repricing options cannot be resolved without understanding whether repricing actually enhances employee retention.

Comparing a sample of firms that reprice underwater stock options in 1998 to a sample of firms with underwater stock options that choose not to reprice, we examine whether repricing

underwater options decreases both executive and overall employee turnover<sup>1</sup>. We also examine whether this relation differs for high technology firms, where labor markets may be tighter and options use is more prevalent.

We contribute to the compensation literature in two ways. First, we shed light on the validity of firms' arguments for repricing. Since turnover costs can be high, a finding that repricing decreases turnover would suggest that opponents may have overlooked benefits of the practice. On the other hand, a finding that repricing does not reduce turnover would support the claims of opponents that repricing merely transfers wealth from shareholders to employees. Second, our study adds to the emerging line of research examining nonexecutive compensation. Although the use of stock options to compensate nonexecutive employees has become more prevalent in recent years, it has received little attention in the literature.<sup>2</sup>

We find little evidence that repricing underwater options affects *executive* turnover. Using forfeited options as a proxy for *overall employee* turnover, we find that employee turnover in 1999 is negatively related to the 1998 repricing, suggesting that repricing prevents employees from leaving due to underwater options. Despite the tight labor markets in which high technology firms operated during this period and their heavier use of options, we find no evidence that the relation between turnover and repricing is stronger for high technology firms.

Our findings are robust to alternative explanations and to controlling for the potential endogeneity of the repricing decision. Overall, our results provide little support for firms' arguments for repricing executive stock options. However, our findings for overall employee turnover suggest that repricing nonexecutive stock options may enhance firms' abilities to retain those employees.

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<sup>1</sup> In this paper, we use the term "executive" to refer to the firm's top-five executives as disclosed in the firm's proxy statement. We use the term "nonexecutive" to refer to the firm's employees that are not top-five executives. We use the term "employee" to refer to both executive and nonexecutive employees.

<sup>2</sup> Exceptions include Huddart and Lang (1996) and Core and Guay (2001).

Section 2 presents background on employee turnover and stock option repricing. Section 3 develops hypotheses and discusses variable measurement. Section 4 describes the sample selection. Section 5 presents the research design and results of the analysis. Section 6 concludes.

## **2. Background**

The relation between CEO and/or executive turnover and firm performance has been documented in prior research. Research on nonexecutive turnover is less prevalent, perhaps because of insufficient data on employee turnover. Coughlan and Schmidt (1985) find a negative relation between CEO turnover and stock price performance for the subsample of CEOs under the age of 64. Their results are consistent with the hypothesis that boards of directors remove managers when stock price performance is poor. Warner et al. (1988) also find a negative relation between top executive turnover and firm performance, consistent with the use of stock returns to monitor and prompt the removal of ineffective managers. These papers conclude that higher executive turnover occurs after poor performance and that the cause is likely forced departures.

In spite of poor stock performance, some firms have attempted to retain, not force out, executives and other employees, as shown by claims in proxy statements. Employees in poorly performing companies may leave because their stock options have declined in value (Leonhardt, 2000). By moving to another company, they can obtain new options at-the-money that have the potential to provide future compensation. As a result, some companies restructure compensation packages to retain employees when they suffer poor stock price performance. Repricing underwater options is one way to do this.<sup>3</sup>

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<sup>3</sup> The SEC treats both altering an existing option and canceling and reissuing new options with a different strike price as repricing; therefore, we consider both in this paper.

Critics claim that repricing rewards poor performance by insulating employees from stock price declines. Shareholders have sued firms over repricing, and institutional investors have proposed resolutions requiring shareholder approval for repricings (Schellhardt, 1999).

In contrast, firms say that they reprice to retain valuable employees. For example, from the 1998 proxy statement of MicroLinear:

The Board undertook this action in light of the then recent reduction in the trading price of the Company's Common Stock and in consideration of the importance of the Company of retaining its employees by offering them appropriate equity incentives. The Board also considered the highly competitive environment for obtaining and retaining qualified employees and the overall benefit to the Company's stockholders from a highly motivated group of employees.

Carter and Lynch (2001) find that repricing firms are more likely to be in high technology industries and have options that are more underwater than otherwise similar firms that do not reprice. If high technology firms operate in tighter labor markets, this evidence is consistent with firms repricing to restore incentives and retain employees. In addition, Grein et al. (2002) find significant positive stock returns around repricing announcements in Canada that appear to be motivated by the desire to restore incentives and retain employees.<sup>4</sup>

The key outstanding question is whether repricing actually enhances employee retention. Our study examines this question.<sup>5</sup> Two recent studies which examine only executive turnover are inconclusive on this point. Chidambaran and Prabhala (2001) find that CEO turnover is *higher* in repricing firms than nonrepricing firms, but that within repricing firms, CEO turnover is *lower* in firms that reprice the CEO's options than it is in firms that reprice nonCEO executive options only. Daily et al. (2002) find that post-repricing executive turnover is *higher* in firms that reprice executive stock options than in firms that do not reprice.

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<sup>4</sup> Grein et al. (2002) interpret pre-repricing stock returns as a measure of the retention motive associated with the repricing.

<sup>5</sup> In this study, we assume that, since the firm reprices stock options, it wants to retain the executive or employee. We do not address *whether* firms should force out or retain the executive or employee.

Our study differs from these studies on several dimensions. First, we consider the implications of repricing for all employees, not only executives. Examining overall employee turnover is critical because nonexecutives hold a large share of options outstanding (Core and Guay, 2001) and because repricings typically reach employees beyond the executive level (Overman, 1999). Second, Chidambaran and Prabhala (2001) examine repricing only in ExecuComp firms, while we include nonExecuComp firms. (Carter and Lynch [2001] show that the majority of repricings occur in nonExecuComp firms.) Third, our research design more completely controls for firms' incentives to reprice than does that in Daily et al. (2002). Specifically, our group of nonrepricing firms includes only firms with underwater options; therefore, control firms in our sample likely experience turnover related to underwater options and are candidates for repricing. Further, we control for prior levels of turnover and for other factors that prior research suggests affect the repricing decision. This is important because, as we discuss in Section 4.3, repricing firms have a higher level of turnover before repricing than nonrepricing firms.

### **3. Hypotheses and variable measurement**

#### 3.1 Hypotheses

Research suggests that the use of stock options enhances employee retention. Kole (1997) finds that options are used to retain employees when their experience or knowledge is costly to lose. Oyer and Schaefer (2001) also find evidence consistent with firms' using stock options to retain employees. Oyer (2001) develops a model that suggests that stock options compensate employees at their market wage, given turnover costs and assuming outside opportunities are correlated with firm performance. We consider the possibility that outside opportunities may be present even when firm performance is poor, as discussed in Section 2. Therefore, underwater options may not encourage retention, as they are not attractive to exercise. If the prospects for improved future performance are low, at-the-money options may have a

greater likelihood of payoff than underwater options and are therefore more valuable to employees. Employees with more valuable options may be less likely to leave.

As discussed in Section 2, firms may respond to underwater options by repricing those options. If repricing decreases turnover, we expect that firms that reprice underwater options will have lower turnover after repricing than otherwise similar firms that do not reprice. Accordingly, we make the following prediction:

**H1:** Repricing underwater stock options is negatively related to employee turnover, *ceteris paribus*.

Several factors suggest that the relation between repricing and employee turnover may be stronger in high technology companies than in nonhigh technology companies. First, the extensive use of stock options in high-growth and technology fields has been well-documented (Core and Guay, 2001; Anderson, et al, 2000). In our sample of firms, high technology firms have a greater ratio of options outstanding to common shares outstanding (12.3%) than do nonhigh technology firms (9.5%). Second, high technology industries may have faced tight labor markets during our study period. For example, the unemployment rate for electrical engineers at 1.4% was well below the average unemployment rate of 4%, and high-technology manufacturers estimated a turnover rate of 16%-25% for engineers (Lazar, 2001). Third, the apparent retention motive for high technology companies' repricing (Carter and Lynch, 2001) suggests that any decrease in turnover would be greater in high technology firms. Accordingly, we make the following prediction:

**H2:** The relation between repricing and turnover is more negative for high technology companies than nonhigh technology companies, *ceteris paribus*.

### 3.2 Variable measurement

*Dependent variables.* We examine the effect of repricing in 1998 on turnover in both 1998 and 1999, since repricing occurs throughout 1998, and employees' decisions to leave may

not occur immediately. The dependent variables in our analysis are 1998 and 1999 executive turnover (EXTO98 and EXTO99) and 1998 and 1999 overall employee turnover (EMPTO98 and EMPTO99). To measure executive turnover for 1998 (1999), we calculate the proportion of 1998 (1999) beginning-of-year top-five executives who leave the firm during 1998 (1999).<sup>6</sup>

We would like to calculate overall employee turnover as the proportion of 1998 (1999) beginning-of-year employees that leave the firm during 1998 (1999). Unfortunately, data on the number of employees that leave the firm are not publicly available. However, employees that leave the firm typically forfeit underwater vested options and all unvested options. Therefore, we use a measure of forfeited options from the financial statement footnotes to measure employee turnover.<sup>7</sup> Since financial statement disclosures vary across firms in that forfeited options often are included with cancelled and expired options, we use the sum of these three in our proxy for employee turnover: the number of options that are forfeited or cancelled, or that expired in 1998 (1999) as a percent of options outstanding at year-end 1997 (1998).<sup>8</sup>

Typical reasons unrelated to employee forfeitures that options may appear in our measure include companies' canceling options when they regrant new ones in a repricing or when they renegotiate compensation contracts, or options expiring unexercised and underwater. Because these factors could affect our proxy for overall employee turnover differently for repricing and nonrepricing firms, we consider them in our research design. First, to address options cancelled in repricings, we include in our analysis of 1998 turnover only those firms that disclose the total number of options repriced, and we exclude the number of options repriced from 1998 forfeited,

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<sup>6</sup> The SEC requires that firms report in their proxy statement compensation data for the CEO and the other four highest paid executives earning more than \$100,000. We use this data to approximate executive turnover. Because of disclosure requirements, when examining executive turnover, we are restricted to examining turnover among only the top-five executives. It is possible that an executive fails to appear on the top-five list because his or her pay is surpassed by that of another executive. In such cases, our measure of executive turnover assumes that the executive left the company.

<sup>7</sup> Aboody et al. (2001) use a similar proxy in their study of the relation between stock prices and stock-based compensation expense.

<sup>8</sup> In our sample of firms, non top-five executives hold 57.1% of options outstanding, suggesting that our proxy for overall employee turnover is heavily influenced by nonexecutive turnover.

cancelled, and expired options.<sup>9</sup> Second, in Section 5.2.1.1, we examine the possibility that nonrepricing firms are renegotiating compensation contracts and canceling options, and find no evidence that this is the case. Finally, because our proxy may be more likely to include options that expire underwater for employees remaining with the nonrepricing firm, we examine whether the underwater options are near expiration and conduct a robustness test in our multivariate analysis including a proxy for the likelihood that options will expire underwater.

To assess the reasonableness of our overall employee turnover proxy, we obtain actual industry-level employee turnover data for 1998 from the Saratoga Institute. For our sample of firms, we calculate 1998 overall employee turnover by industry, using our proxy for overall employee turnover, aggregated into their twenty-five industry groupings. The correlation between our proxy for overall employee turnover and the employee turnover data provided by the Saratoga Institute is 0.66 ( $p < 0.01$ ), suggesting that our proxy is capturing overall employee turnover.

*Independent variables.* We use five sets of independent variables to examine turnover. To test the first hypothesis that repricing decreases employee turnover, we construct an indicator variable equal to one if the firm reprices in 1998 (REPRICE). If repricing underwater options decreases turnover (H1), then we expect a negative relation between this variable and turnover.

To test the second hypothesis, we interact our repricing variable (REPRICE) with an indicator variable identifying the firm as a high technology firm (HITECH). We classify a firm as high technology based on its inclusion in the *1998 CorpTech Directory of Technology Companies*. If high technology firms experience a more negative relation between turnover and

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<sup>9</sup> Only 19 of the 135 repricing firms in our sample clearly indicate whether repriced options are included or excluded from options forfeited, cancelled, and expired. Of those firms, two firms explicitly indicate that repriced options are NOT included in forfeited, cancelled, and expired options. For those two firms, we do not exclude the number of options repriced. In addition, for some firms, this calculation results in a negative number. In those instances, we assume that the number of repriced options was NOT included in forfeited, cancelled, and expired options, and therefore we do not subtract out the number of repriced options.

repricing (H2), then we expect the coefficient on the variable interacting HITECH and REPRICE to be negative and significant.

Third, we include a variable to capture the impact of underwater options on turnover. From the employee's perspective, the further options are underwater, the smaller the chance that they will move back into-the-money. The impact of options not returning to in-the-money status is greater for employees who have a greater proportion of their stock option portfolio underwater. We measure the magnitude of the underwater option portfolio (MAG\_OOM) as the proportion of the option portfolio that is underwater multiplied by the extent to which those options are underwater, and expect a positive relation between MAG\_OOM and turnover.<sup>10</sup> The proportion of the firm's option portfolio that is underwater is calculated as follows:

$$\frac{\text{number of year-end 1997 options outstanding that are underwater at the repricing date}}{\text{total number of options outstanding at the end of 1997}}$$

We obtain data regarding the option portfolio from financial statement footnotes and the repricing date for repricing firms from the proxy statement. We assume an equivalent "repricing date" for nonrepricing firms to be the month-end date in 1998 on which the firm's stock price is the lowest.<sup>11</sup> The extent to which options are underwater is calculated as follows:

$$\frac{(\text{Wtd avg ex price of underwater options outstdg at year-end 1997} - \text{stock price at repricing date})}{\text{Weighted average exercise price of underwater options outstanding at year-end 1997}}$$

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<sup>10</sup> Note that this variable is calculated for the firms' entire option portfolio. Since it is not possible to calculate a comparable number for executives, in our analysis of executive turnover, we assume that the proportion of the firms' entire option portfolio that is underwater is representative of the proportion of executive options that is underwater.

<sup>11</sup> Callaghan et al. (2002) find that firms tend to reprice when their stock price reaches its lowest point.

Using stock price data from the Center for Research in Securities Prices (CRSP), we follow the procedure outlined in Carter and Lynch (2001) to determine the number of year-end 1997 options outstanding that are underwater and to determine their weighted average exercise price.

Fourth, we include 1997 turnover (EXTO97, EMPTO97), measured using the same methods described above, to control for differences in turnover across firms before 1998.

Finally, we include control variables shown in prior research to affect turnover (see, for example, Coughlan and Schmidt, 1985; Warner et al., 1988; Murphy and Zimmerman, 1993). As a proxy for firm performance, we include stock returns for the year in which turnover is being measured (PERF). Consistent with prior research, we expect a negative relation between performance and turnover. As a measure of firm size, we include the natural log of sales for the year in which turnover is being measured (LNSALES). Consistent with Warner et al. (1988), we expect a positive relation between firm size and turnover. In our analysis of executive turnover, we include the average age of executives (AGE), calculated in the year in which turnover is being measured. We obtain executive ages from proxy statements, 10K reports, Bloomberg, and Nelson's *Directory of Investment Research*. If executives' being closer to retirement leads to higher turnover, we expect a positive relation between age and turnover. If young executives are more mobile and less loyal to the firm, we expect a negative relation between age and turnover.

#### **4. Sample selection**

##### **4.1 Sample of repricing firms**

The SEC requires companies to publish a "10-Year Stock Option Repricings" table in their annual proxy statements in any year in which they reprice executive stock options. We identify firms that reprice executive stock options in 1998 from a Lexis/Nexis search of proxy statements.<sup>12</sup> We examine their proxy statements to obtain a sample of firms lowering the

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<sup>12</sup> The search string used is "option! w/10 repric! and filing-date = 1999 and not form-type (proxy plm)".

exercise price of executive stock options in 1998, for which there is a repricing date available and for which the repricing is not a mechanical repricing from a transaction such as a merger or stock split. Because of extensive manual data collection requirements, we restrict our sample to firms that reprice in 1998 and that have a December fiscal year end. We exclude 54 firms repricing in December 1998 because prior research shows an increase in repricing activity between December 4 and December 15, 1998, in response to the Financial Accounting Standards Board's announcement regarding a change in accounting for repricings (Carter and Lynch, 2003).<sup>13</sup>

From this sample of 271 repricings in January through November 1998, we eliminate 68 firms without sales data available on Compustat or stock returns data available on CRSP. We eliminate 35 firms without sufficient data to determine the number of options underwater or the extent to which those options are underwater. We eliminate 27 firms that also reprice in 1997 and 6 firms that also reprice in 1999. This restriction allows us to identify the effects of repricings that are not confounded by other repricings. Thus, the sample of repricing firms consists of 135 firms; 88 firms are high technology and 47 are nonhigh technology, based on their inclusion in the *1998 CorpTech Directory of Technology Companies*.

Because firms are not required to disclose the details of repricings of nonexecutive stock options, we determine whether nonexecutive stock options are repriced by comparing the number of executive options repriced with the total number of options repriced, when available. Of the 135 firms that reprice executive options, 132 provide information on the number of executive options repriced. The mean (median) number of executive options repriced in 1998 as a percent of total options underwater at the end of 1997 is 56.5% (29.4%). Only 97 firms provide information on the total number of options (executive and nonexecutive) repriced. Of these 97 firms, nine firms reprice only executive options. The remaining 88 firms reprice more than

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<sup>13</sup> Firms repricing during December 1998 likely are repricing for different reasons than those repricing at other times in 1998. To ensure that the exclusion of these firms does not affect our results, we conduct the multivariate analysis including those firms. Our conclusions are unchanged.

executive options. For these firms, the mean (median) number of options repriced as a percent of total options underwater at the end of 1997 is 89.0% (79.3%).<sup>14</sup> This suggests that companies are not repricing selectively but reprice most underwater options and that repricing typically goes deeper into the organization than just executives.

#### 4.2 Sample of nonrepricing firms

Ideally, we would compare turnover in repricing firms with turnover in those firms had they not repriced. Since this is impossible, we proxy for turnover using a sample of 135 nonrepricing firms matched on the industry classification to control for labor market conditions. To obtain this sample, we start with all December fiscal year-end Compustat firms that are not part of our sample of repricing firms.<sup>15</sup> We require these firms to have 1997 asset data to ensure that they are filing financial statements in 1997, resulting in 4,316 firms. Then, we randomly select firms from this group and collect data on exercise prices from the stock option footnote in their 1997 financial statements. For each firm with sufficient data on exercise prices, we compare the range of exercise prices obtained from the stock option footnote with the firm's lowest month-end stock price in 1998 obtained from CRSP. If the exercise price of any of its stock options is greater than the lowest month-end stock price in 1998, we consider the firm to have underwater options in 1998.<sup>16</sup> We eliminate firms that reprice in 1997-1999. We further limit the sample to firms that have sales data, stock return data, and data to determine the number of options that are underwater and the extent to which those options are underwater. We continue this process until we have 88 high technology firms and 47 nonhigh technology firms.

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<sup>14</sup> A firm may state that it repriced options for all employees but does not provide information on the total number of options repriced, only the number of executive options repriced. For these firms, we are unable to determine the percent of underwater options repriced.

<sup>15</sup> Since details of repricing are required in the proxy statement only for top-five executives, we review other SEC filings to ensure none of our nonrepricing firms mentions repricing nonexecutive options only.

<sup>16</sup> Because detailed data regarding executives' portfolios of stock options are not available, in our analysis of executive turnover, we assume that if a control firm has underwater options, some of those underwater options are held by executives.

### 4.3 Final sample of repricing and nonrepricing firms

The 135 repricing and 135 nonrepricing firms, matched only on industry, differ significantly (results untabulated). The magnitude of the underwater option portfolio (MAG\_OOM) is significantly greater for repricing firms (mean = 36.7%) than for nonrepricing firms (mean = 19.5%). This difference likely results from repricing firms' mean stock price performance in 1998 of -34.9% being significantly lower than the -5.7% of nonrepricing firms. In addition, repricing firms have significantly higher executive and overall employee turnover in 1997.

These differences affect the incentive to reprice, and that incentive can influence subsequent turnover. Therefore, we control for these differences by using, as our final sample, a group of repricing and nonrepricing firms with similar incentives to reprice. Matching on MAG\_OOM and turnover, however, is prohibitively costly, as the data must be hand-collected before a firm can be considered. Thus, to limit the original sample of 270 firms to a subset of firms with similar incentives to reprice, we use a model of the repricing decision based on Carter and Lynch (2001). Because our investigation assumes that firms reprice to reduce turnover and because firms may be more likely to reprice as they rely more heavily on options as compensation, we also include in our model a direct measure of turnover and a measure of the importance of options. Consequently, we estimate the following logit model on the initial sample of 270 repricing and nonrepricing firms.<sup>17</sup>

$$0,1_i = \alpha_0 + \alpha_1 \text{HITECH}_i + \alpha_2 \text{OOM}_i + \alpha_3 \text{FIRM\_RETS}_i + \alpha_4 \text{IND\_RETS}_i + \alpha_5 \text{FIRMAGE}_i + \alpha_6 \text{EXTO97}_i + \alpha_7 \text{OPTIONS}_i + \varepsilon_i \quad (1)$$

where

$$0,1_i = 0 \text{ if firm } i \text{ does not reprice during 1998 and } 1 \text{ if firm } i \text{ reprices in 1998}$$

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<sup>17</sup> To mitigate the influence of outlying observations on our predictions, we winsorize the continuous variables, except FIRMAGE, with values below (above) the 1<sup>st</sup> (99<sup>th</sup>) percentile.

HITECH <sub>i</sub>	=	1 if firm i is classified as high technology, 0 otherwise <sup>18</sup>
OOM <sub>i</sub>	=	Extent to which firm i's repriced options are underwater
FIRM_RETS <sub>i</sub>	=	Cumulative monthly stock returns for 12 months prior to repricing date for firm i minus median cumulative monthly stock returns for 12 months prior to repricing date for all firms in firm i's 2-digit SIC code
IND_RETS <sub>i</sub>	=	Median cumulative monthly stock return for 12 months prior to repricing date for all firms in firm i's 2-digit SIC code
FIRMAGE <sub>i</sub>	=	Number of years firm i has been reported on CRSP
EXTO97 <sub>i</sub>	=	Proportion of 1997 beginning-of-year top-five executives that leave the firm during 1997 for firm i
OPTIONS <sub>i</sub>	=	Number of options outstanding / Number of common shares outstanding, at fiscal year-end 1997 for firm i

Results from estimating this model are presented in Table 1 Panel A.<sup>19</sup> Using predicted values from this model for the initial sample of 270 repricing and nonrepricing firms matched on industry, we classify a firm as having greater (lower) incentives to reprice based on whether the likelihood of repricing, as estimated by the model, is greater than (less than) 50%. Then, we create a 2x2 classification of our sample, with the first dimension being whether the firm has greater or lower incentives to reprice, and the second being whether the firm reprices in 1998. Table 1 Panel B presents this 2x2 classification. Of the 99 firms that the model suggests have greater incentives to reprice, 74 firms reprice and 25 firms do not.<sup>20</sup> Of the 130 firms that the model suggests have lower incentives to reprice, 30 reprice and 100 do not. We lack sufficient

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<sup>18</sup> Approximately 70 percent of the firms in our sample classified as high technology fall into the following five industries: chemicals/drugs (SIC 28), computer equipment (SIC 35), electronics (SIC 36), measurement instruments (SIC 38), and software (SIC 73).

<sup>19</sup> Similar to results in Carter and Lynch (2001), the extent to which firms' options are underwater is significant in explaining the repricing decision. However, the technology nature of the firm is not significant, but this is not surprising since our sample of nonrepricing firms was selected to match the technology nature of repricing firms. The positive coefficient on industry returns in our model is not consistent with repricing firms insulating employees from industry-wide factors beyond their control, but suggests that firms reprice to prevent employees from leaving for better performing firms in the industry. In addition, our model suggests that firms with higher turnover and firms that use options more heavily are more likely to reprice. Finally, firm age is not significant, possibly due to its correlation with the two additional variables in this model, turnover and options use.

<sup>20</sup> Reasons why a company with greater incentives to reprice might not do so include a corporate prohibition against repricing, an inability to obtain shareholder approval if required, the controversy surrounding the practice, a belief that repricing does not help retain employees, and a decision to take other steps to retain employees.

data to obtain a prediction for the remaining 41 firms. Therefore, the model correctly classifies 76% of the 229 firms for which we have data to obtain a prediction.

Table 2 presents descriptive statistics for the final sample of 99 firms that the model identifies as having greater incentives to reprice. The level of executive turnover (EXTO97) is similar between repricing and nonrepricing firms in 1997; the average (median) executive turnover for repricing firms in 1997 of 24.5% (20.0%) is not statistically different from turnover of 20.3% (20.0%) for nonrepricing firms. Likewise, our proxy for overall employee turnover suggests that the level of overall employee turnover is similar between repricing and nonrepricing firms in 1997. Specifically, average (median) overall employee turnover for repricing firms in 1997 of 12.1% (9.3%) is not statistically different from overall employee turnover of 15.2% (13.5%) for nonrepricing firms. Finally, the magnitude of the underwater option portfolio and stock returns are similar between the two groups, and the firms in the two groups are of similar size.

## 5. Analysis

### 5.1 Research design

To examine the effect of repricing on turnover, we first compare executive turnover and our proxy for overall employee turnover between the 74 repricing and the 25 nonrepricing firms from 1997 to 1999 in a univariate analysis. We then use our sample of repricing and control firms to estimate the following OLS regression:<sup>21</sup>

$$TO_i = \alpha_0 + \alpha_1 REPRICE_i + \alpha_2 MAG\_OOM_i + \alpha_3 TO97_i + \alpha_4 PERF_i + \alpha_5 LNSALES_i + \alpha_6 AGE_i + \varepsilon_i \quad (2)$$

where

$TO_i$  = EXTO98 or EXTO99 (proportion of 1998 (1999) beginning-of-year top-five executives that leave the firm during 1998 (1999)) for firm  $i$ , or

<sup>21</sup> To mitigate the influence of outlying observations, we winsorize the continuous variables (except AGE and LNSALES) with values below (above) the 1<sup>st</sup> (99<sup>th</sup>) percentile.

- EMPTO98 or EMPTO99 (number of forfeited, cancelled, and expired options in 1998 (1999) / number of options outstanding at year end 1997 (1998)), for firm  $i$
- REPRICE $_i$  = 1 if firm  $i$  reprices in 1998, 0 otherwise<sup>22</sup>
- MAG\_OOM $_i$  = (number of options outstanding at year end 1997 that are underwater at the 1998 repricing date / number of options outstanding at year end 1997) x ((weighted avg exercise price of underwater options outstanding at year end 1997 - market price of stock at repricing date) / weighted avg exercise price of underwater options outstanding at year end 1997), for firm  $i$
- TO97 $_i$  = EXTO97 (proportion of 1997 beginning-of-year top-five executives that leave the firm during 1997) for firm  $i$ , or  
EMPTO97 (number of forfeited, cancelled, and expired options in 1997 / number of options outstanding at year end 1996), for firm  $i$
- PERF $_i$  = 12-month cumulative stock returns in 1998 or 1999 for firm  $i$
- LNSALES $_i$  = natural log of sales in 1998 or 1999 for firm  $i$
- AGE $_i$  = average age of firm  $i$ 's executives in 1998 or 1999<sup>23</sup>

## 5.2 Results

### 5.2.1 Executive turnover

Table 3 Panel A presents univariate comparisons of executive turnover for repricing and nonrepricing firms. Executive turnover shows no significant change in 1998 or 1999 for repricing firms, and these changes do not differ significantly from those observed in the nonrepricing firms. These statistics provide no evidence that repricing affects executive turnover.

Table 4 Panel A presents results from the regressions of 1999 and 1998 executive turnover (EXTO99 and EXTO98) on the repricing variable (REPRICE) and control variables. We find no evidence that repricing is associated with lower executive turnover (H1), as the relation between executive turnover and REPRICE is not significant at conventional levels in either regression. Finally, in results not tabulated, we find no evidence that the relation between

<sup>22</sup> We also estimate all regressions using an alternative form of this independent variable: the percent of underwater options repriced. Our conclusions are unchanged.

<sup>23</sup> Because overall employee age data is not available, this variable is included in the analysis of executive turnover only.

REPRICE and executive turnover is more negative for high technology firms (H2) in regressions that allow for different relations for high technology and nonhigh technology firms.

#### 5.2.1.1 Further analysis of executive turnover

There are several possible explanations for the lack of relation between executive turnover and repricing. First, if managerial ownership is higher in control firms, those executives may be less likely to leave the firm even in the absence of repricing. However, using data from firms' proxy statements, we find no difference in the percentage of common shares held by top-five executives in 1997 between the repricing and control firms.

Second, nonrepricing firms may alter other forms of compensation in lieu of repricing. To examine this, we collect the components of compensation for executives for 1996 through 1998 from the firms' proxy statements or from ExecuComp. We examine whether changes in compensation from the average of 1996 and 1997 to 1998 are different for the nonrepricing firms than the repricing firms. An increase in salary, bonus, stock option grants or restricted stock that is greater for nonrepricing firms than repricing firms would be consistent with nonrepricing firms' using alternatives to repricing. We find that nonrepricing firms do not have greater increases in total compensation, salary, bonus, number of options granted, value of options granted, or restricted stock in 1998 than repricing firms. Further, we do not find that more nonrepricing firms increase any of these components of compensation, other than restricted stock, in 1998.<sup>24</sup> While we do find that more nonrepricing firms increase restricted stock grants in 1998, this finding is driven by a difference of one firm (4 nonrepricing firms vs. 3 repricing firms). Further, the average value of restricted stock grants per executive is lower for the nonrepricing

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<sup>24</sup> For repricing firms, the value of options granted may include options granted in prior years that are repriced in 1998. However, in our examination of the number of options granted, we can subtract the number of options granted in prior years that are repriced in 1998. Since this measure is not affected by repriced options and since we find no difference between repricing and control firms in growth in the number of options granted, this suggests that nonrepricing firms are not using additional option grants as an alternative to repricing in an attempt to retain employees.

firms than repricing firms. These data suggest that restricted stock grants are not replacing repricing. In total, this analysis suggests that the lack of relation between repricing and executive turnover is not due to nonrepricing firms altering other forms of compensation in lieu of repricing.

Third, nonrepricing-firm executives may have limited opportunities outside their firm; they might want to leave as a result of underwater options, but cannot. If so, we would expect turnover to be positively related to the underwater options for the repricing firms (prior to repricing) but not related for the nonrepricing firms. Using 1997 stock returns as a proxy for the degree to which options are underwater in 1997, we examine whether the relation between executive turnover in 1997 and underwater options in 1997 is different for the repricing firms than the nonrepricing firms. Results (untabulated) show no difference, suggesting that the lack of relation between executive turnover and repricing is not because nonrepricing firm executives having limited opportunities.

Finally, we use an aggregate measure of executive turnover at the firm level. Examining turnover at the individual executive level might enhance our ability to detect any decrease in executive turnover as a result of repricing. But, when we examine 1999 turnover at the executive level within firms that reprice in 1998 (results not tabulated), we find no evidence of a relation between executive turnover and repricing.<sup>25</sup>

### 5.2.2 Overall employee turnover

Table 3 Panel B presents univariate comparisons of our proxy for overall employee turnover for repricing and nonrepricing firms. Our proxy suggests that repricing firms, despite repricing options in 1998, see an increase in employee turnover in 1998 from an average (median) of 12.1% (9.3%) in 1997 to 22.8% (18.1%) in 1998. This increase is significant at  $p < 0.01$ .

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<sup>25</sup> We do not examine 1998 executive turnover because we cannot determine whether the repricing occurred prior to or after departure for executives leaving in 1998.

However, our proxy suggests that employee turnover decreases significantly in 1999 for repricing firms by an average (median) of 8.1% (2.9%), significant at  $p < 0.01$  ( $p < 0.05$ ). This decrease is significantly greater than that exhibited by nonrepricing firms, for which employee turnover shows no significant change in 1999. These results suggest that repricing does not reduce turnover in 1998 but does decrease overall employee turnover in 1999, consistent with our predictions.

Table 4 Panel B presents results from the regressions of our proxy for 1998 and 1999 overall employee turnover (EMPTO98 and EMPTO99) on the repricing variable (REPRICE) and control variables. While repricing is not associated with lower employee turnover in 1998, results suggest that the relation between employee turnover and repricing is significantly negative in 1999 (t-statistic = -3.46), consistent with the univariate results and with hypothesis 1. However, in results (not tabulated) from regressions allowing for different relations between our proxy for overall employee turnover and REPRICE for high technology and nonhigh technology firms, we find no evidence in support of hypothesis 2.

That our hypothesis holds in 1999 but not in 1998 may be because repricings occur throughout 1998 and that for repricings that occur later in the year, there is not enough time for the benefit of enhanced retention to appear in 1998. However, when we allow for a different relation on REPRICE and EMPTO98 for repricings that occur in the first half of 1998 (results untabulated), we are unable to document a significant negative relation for those firms, possibly due to the low power of the test.

#### 5.2.2.1 Further analysis of overall employee turnover

As discussed in section 3.2, our proxy for overall employee turnover may overstate turnover by including options that expire underwater for employees remaining with the firm. However, because the weighted average remaining life of underwater options is 7.3 years, options underwater at the beginning of 1998 likely did not expire in 1998 or 1999 and therefore did not

affect our turnover proxy. Also, we re-estimate model (2) including the weighted average life for underwater options as a proxy for the likelihood that options expire underwater in 1998 or 1999, and our conclusions about the impact of repricing on turnover do not change.

An alternative explanation is that employees leave repricing firms and exercise recently repriced in-the-money options. This would create the appearance of lower turnover because they would exercise, rather than forfeit, their options. But vesting periods are often extended in repricings which should prevent this. Regardless, to ensure this is not an issue in our analysis, we re-estimate the analysis for 1999 adding option exercises to our measure of employee turnover. Our conclusions do not change.

In summary, we find little evidence that repricing is related to lower executive turnover. But, we find evidence that repricing decreases overall employee turnover in 1999 and that this decrease is greater than that experienced by nonrepricing firms. One possible explanation of our findings is that underwater options have a lower impact on overall wealth of executives than of other employees and, as a result, executives may be less motivated to leave because of them.

### 5.2.3 Robustness tests

*Potential endogeneity of the repricing decision.* A concern in estimating model (2) is that firms *choose* to reprice, so self-selection bias may affect an OLS regression of turnover on an indicator variable for repricing choice and other variables (see for example, Heckman, 1978). To address this, we re-estimate model (2) including the predicted probability of repricing obtained from the first-stage probit regression of model (1) as an additional independent variable.<sup>26</sup> Our conclusions do not change.

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<sup>26</sup> Including this additional variable helps to control for self-selection and produces consistent parameter estimates using OLS. To facilitate correct inferences, we adjust the standard errors to account for correlation between the first and second stage equations (see Maddala, 1983). See Leuz and Verrecchia, 2000, for a discussion of this issue.

*Impact of acquisitions.* Since acquisitions could impact turnover, we re-estimate model (2) including an indicator variable equal to one if the firm is involved in an acquisition (obtained from Securities Data Corporation's Mergers and Acquisitions database) during the prior year or the year in which we measure turnover. Our conclusions do not change.

*Impact of expected future stock price performance.* Employees' decisions to leave the firm may be influenced by their expectations about future stock price performance. We re-estimate model (2) for 1998 (1999) turnover including realized stock returns in 1999 (2000) as a proxy for expected returns, and our conclusions do not change.

*Impact of using entire sample of 270 firms.* As discussed in section 4.3, we conduct our analysis using the 99 firms with greater, and thus similar, incentives to reprice. To ensure that our results are not driven by limiting the sample to these 99 firms, we re-estimate model (2) using the entire sample of 270 firms and include the predicted value from a first-stage probit regression to control for firms' incentives to reprice. Our conclusions do not change, as the relation between 1999 turnover and repricing for employees is negative and significant at  $p < 0.05$ .

## **6. Conclusion**

We examine the impact of repricing underwater stock options on executive and overall employee turnover. Anecdotal evidence suggests that the presence of underwater options increases employee turnover and that firms, particularly those operating in tight labor markets, reprice underwater stock options to retain employees. Repricing is controversial, however, and opponents say that it rewards employees for poor performance. Our study sheds light on this issue by providing evidence on the relation between repricing and employee turnover.

We find little evidence that repricing underwater options affects executive turnover, a result that differs from prior research (Chidambaran and Prabhala, 2001; Daily et al., 2002). A

potential explanation for the difference is our research design, which controls for pre-repricing levels of turnover and other incentives to reprice.

We use forfeited options as a proxy for overall employee turnover and find evidence of a negative relation between our proxy for 1999 overall employee turnover and repricing, suggesting that repricing enhances retention in the presence of underwater options. Despite the tight labor markets in which high technology firms operated and their heavier use of stock options, we find no evidence that the relation between overall employee turnover and repricing is more negative for high technology firms.

Our results are robust to alternative explanations and to controlling for possible endogeneity of the repricing decision. They provide little support for firms' arguments for repricing executive stock options, but suggest that repricing nonexecutive stock options may enhance firms' abilities to keep those employees.

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## Appendix A

### Variable definitions

EXTO99 <sub>i</sub>	=	Number of executives in 1998 summary compensation table that are not in 1999 summary compensation table / Number of executives in 1998 summary compensation table
EMPTO99 <sub>i</sub>	=	Options forfeited/cancelled/expired in 1999 / Total stock options outstanding at the end of 1998 for firm i
EXTO98 <sub>i</sub>	=	Number of executives in 1997 summary compensation table that are not in 1998 summary compensation table / Number of executives in 1997 summary compensation table
EMPTO98 <sub>i</sub>	=	Options forfeited/cancelled/expired in 1998 / Total stock options outstanding at the end of 1997 for firm i
EXTO97 <sub>i</sub>	=	Number of executives in 1996 summary compensation table that are not in 1997 summary compensation table / Number of executives in 1996 summary compensation table
EMPTO97 <sub>i</sub>	=	Options forfeited/cancelled/expired in 1997 / Total stock options outstanding at the end of 1996 for firm i
REPRICE <sub>i</sub>	=	0 if firm i does not reprice in 1998 and 1 if firm i reprices in 1998
MAG_OOM <sub>i</sub>	=	(number of options outstanding at year end 1997 that are underwater at the 1998 repricing date / number of options outstanding at year end 1997) x ((weighted average exercise price of underwater options outstanding at year end 1997 - market price of stock at repricing date) / weighted average exercise price of underwater options outstanding at year end 1997), for firm i
PERF99 <sub>i</sub>	=	Stock returns in 1999 for firm i
PERF98 <sub>i</sub>	=	Stock returns in 1998 for firm i
LNSALES99 <sub>i</sub>	=	Natural log of sales in 1999 for firm i
LNSALES98 <sub>i</sub>	=	Natural log of sales in 1998 for firm i
AGE <sub>i</sub>	=	Average age of firm i's executives
HITECH <sub>i</sub>	=	1 if firm i is classified as high technology, 0 otherwise

**Table 1**  
**Prediction of 1998 repricing decision for 135 firms repricing in 1998 and 135 nonrepricing firms matched on industry classification**

**Panel A: Logit regression of 1998 repricing decision on variables explaining the repricing decision**

$$0,1_i = \alpha_0 + \alpha_1 \text{HITECH}_i + \alpha_2 \text{OOM}_i + \alpha_3 \text{FIRM\_RETS}_i + \alpha_4 \text{IND\_RETS}_i + \alpha_5 \text{FIRMAGE}_i + \alpha_6 \text{EXTO97}_i + \alpha_7 \text{OPTIONS}_i + \varepsilon_i$$

Variable	Predicted sign	Coefficient	z-statistic
Intercept	?	-2.41	-4.32 ###
HITECH	+	0.05	0.14
OOM	+	3.90	3.59 ***
FIRM_RETS	-	-0.22	-0.27
IND_RETS	?	2.12	2.21 ##
FIRMAGE	-	-0.02	-0.91
EXTO97	+	1.24	1.57 *
OPTIONS	+	9.03	3.23 ***
Pseudo-R <sup>2</sup>		22%	
N		229	

\* Significant at 10% level, 1-tailed test      # Significant at 10% level, 2-tailed test  
 \*\* Significant at 5% level, 1-tailed test      ## Significant at 5% level, 2-tailed test  
 \*\*\* Significant at 1% level, 1-tailed test      ### Significant at 1% level, 2-tailed test

Variable definitions

0,1<sub>i</sub> = 0 if firm i does not reprice during 1998 and 1 if firm i reprices during 1998  
 HITECH<sub>i</sub> = 1 if firm i is classified as high technology, and 0 otherwise  
 OOM<sub>i</sub> = Extent to which firm i's repriced options are underwater  
 FIRM\_RETS<sub>i</sub> = Cumulative monthly stock returns for firm i minus median cumulative monthly stock return for all firms in firm i's 2-digit SIC code for 12 months prior to repricing date for firm i  
 IND\_RETS<sub>i</sub> = Median cumulative monthly stock return for 12 months prior to repricing date for all firms in firm i's 2-digit SIC code  
 FIRMAGE<sub>i</sub> = Number of years firm i has been reported on CRSP  
 EXTO97<sub>i</sub> = Number of executives in 1996 summary compensation table that are not in 1997 summary compensation table / Number of executives in 1996 summary compensation table for firm i  
 OPTIONS<sub>i</sub> = Number of options outstanding / Number of common shares outstanding, at fiscal year-end 1997 for firm i

**Panel B: 2x2 classification of firms by whether or not firm has greater or lower incentives to reprice in 1998 and whether or not firm reprices in 1998**

	Greater incentives to reprice in 1998	Lower incentives to reprice in 1998	Insufficient data to generate a prediction	
Reprices in 1998	N = 74	N = 30	N = 31	N = 135
Does not reprice in 1998	N = 25	N = 100	N = 10	N = 135
	N = 99	N = 130	N = 41	

**Table 2**  
**Descriptive statistics for 74 repricing and 25 nonrepricing firms**  
**identified by model (1) as having greater incentives to reprice**

**Mean (median)**

	<b>Repricing Firms (74 firms)</b>	<b>Nonrepricing Firms (25 firms)</b>	<b>Test of difference (p-values) (a)</b>
1997 executive turnover (EXTO97)	24.5% (20.0%)	20.3% (20.0%)	0.43 (0.40)
1997 employee turnover (EMPTO97)	12.1% (9.3%)	15.2% (13.5%)	0.23 (0.51)
Magnitude of the underwater option portfolio (MAG_OOM)	42.4% (41.1%)	48.4% (49.0%)	0.21 (0.18)
1999 stock returns (PERF99)	107.1% (14.7%)	131.4% (31.6%)	0.70 (0.90)
1998 stock returns (PERF98)	-39.7% (-46.3%)	-22.8% (-43.9%)	0.11 (0.42)
1999 sales (LNSALES99)	\$ 283.0 (\$ 48.2)	\$ 140.6 (\$ 28.1)	0.30 (0.13)
1998 sales (LNSALES98)	\$ 256.9 (\$ 43.7)	\$ 133.4 (\$ 26.1)	0.35 (0.18)
Average age of executives in 1998 (AGE)	49.5 (48.9)	49.7 (48.3)	0.86 (0.77)
Proportion of firms classified as high technology (HITECH)	70.3%	72.0%	0.87

(a) t-test of difference in means (Mann-Whitney rank sum test of difference in medians).

See Appendix A for variable definitions.

**Table 3**  
**Univariate comparisons of 74 repricing and 25 nonrepricing firms**  
**identified by model (1) as having greater incentives to reprice in 1998**

**Mean (median)**

**Panel A: Executive turnover**

	<b>Repricing Firms (74 firms)</b>	<b>Nonrepricing Firms (25 firms)</b>	<b>Test of difference (p-values) (a)</b>
1999 executive turnover	26.1% ### (25.0%) ###	26.5% ### (0.0%) ###	0.95 (0.56)
1998 executive turnover	23.3% ### (20.0%) ###	21.3% ### (20.0%) ###	0.68 (0.54)
1997 executive turnover	24.5% ### (20.0%) ###	20.3% ### (20.0%) ###	0.43 (0.40)
Change in executive turnover from 1997 to 1998	-1.0% (0.0%)	1.0% (0.0%)	0.74 (0.47)
Change in executive turnover from 1998 to 1999	3.3% (0.0%)	5.1% (0.0%)	0.81 (0.71)
Change in executive turnover from 1997 to 1999	1.4% (0.0%)	7.3% (0.0%)	0.48 (0.47)

**Panel B: Overall employee turnover**

	<b>Repricing Firms (74 firms)</b>	<b>Nonrepricing Firms (25 firms)</b>	<b>Test of difference (p-values) (a)</b>
1999 employee turnover	15.2% ### (11.2%) ###	28.1% ### (19.7%) ###	0.01 (0.05)
1998 employee turnover	22.8% ### (18.1%) ###	26.5% ### (19.8%) ###	0.48 (0.68)
1997 employee turnover	12.1% ### (9.3%) ###	15.2% ### (13.5%) ###	0.23 (0.51)
Change in employee turnover from 1997 to 1998	10.3% ### (6.1%) ###	11.0% ## (5.4%) #	0.90 (0.90)
Change in employee turnover from 1998 to 1999	-8.1% ### (-2.9%) ##	2.6% (9.1%)	0.08 (0.06)
Change in employee turnover from 1997 to 1999	3.2% # (1.4%) #	13.5% ## (14.0%) ##	0.02 (0.04)

(a) t-test of difference in means (Mann-Whitney rank sum test of difference in medians).  
 #, ##, ### different from zero at the 10%, 5% and 1% levels, respectively, using a 2-tailed test

**Table 4**  
**OLS regressions of executive and overall employee turnover on the decision to reprice and other variables that explain turnover using 99 firms identified by model (1) as having greater incentives to reprice in 1998**

**Panel A: Executive turnover (EXTO99 and EXTO98)**

$$\text{Model: } TO_i = \alpha_0 + \alpha_1 \text{REPRICE}_i + \alpha_2 \text{MAG\_OOM}_i + \alpha_3 \text{TO97}_i + \alpha_4 \text{PERF}_i + \alpha_5 \text{LNSALES}_i + \alpha_6 \text{AGE}_i \varepsilon_i$$

Variable	Prediction	Dependent Variable EXTO99		Dependent Variable EXTO98	
		Coefficient	t-statistic	Coefficient	t-statistic
Intercept		-0.103	-0.30	0.302	1.20
REPRICE	-	-0.024	-0.34	-0.012	-0.27
MAG_OOM	+	0.223	1.42 *	-0.135	-1.36
EXTO97	+	0.106	0.75	0.178	2.02 **
PERF99	-	-0.005	-0.42		
PERF98	-			0.030	0.62
LNSALES99	+	0.030	1.71		
LNSALES98	+			0.026	2.36 ##
AGE	?	0.003	0.43	-0.002	-0.59
Adj. R <sup>2</sup>		0.00		0.09	
N		88		98	

**Panel B: Overall employee turnover (EMPTO99 and EMPTO98)**

$$\text{Model: } TO_i = \alpha_0 + \alpha_1 \text{REPRICE}_i + \alpha_2 \text{MAG\_OOM}_i + \alpha_3 \text{TO97}_i + \alpha_4 \text{PERF}_i + \alpha_5 \text{LNSALES}_i + \varepsilon_i$$

Variable	Prediction	Dependent Variable EMPTO99		Dependent Variable EMPTO98	
		Coefficient	t-statistic	Coefficient	t-statistic
Intercept		0.189	2.99 ###	0.177	1.95 #
REPRICE	-	-0.132	-3.46 ***	-0.027	-0.49
MAG_OOM	+	0.033	0.42	0.054	0.43
EMPTO97	+	0.380	2.53 ***	0.420	1.88 **
PERF99	-	-0.017	-2.66 ***		
PERF98	-			-0.052	-0.96
LNSALES99	+	0.012	1.38		
LNSALES98	+			-0.004	-0.27
Adj. R <sup>2</sup>		0.20		0.01	
N		92		78	

\* Significant at 10% level, 1-tailed test  
 \*\* Significant at 5% level, 1-tailed test  
 \*\*\* Significant at 1% level, 1-tailed test

# Significant at 10% level, 2-tailed test  
 ## Significant at 5% level, 2-tailed test  
 ### Significant at 1% level, 2-tailed test

See Appendix A for variable definitions.