## INTERNET APPENDIX

# 1. Logit and Linear Probability Models

**Table 1 Leverage and the Likelihood of a Union Strike (Logit Models)**

This table presents estimation results of logit models of union strikes during a contract negotiation year $t$. We report results of our analysis without control variables (Panel A) and with control variables (Panel B). All specifications include time, industry, state, and union fixed effects. Levels of independent variables are measured at the end of fiscal year $t-1$. The three-year change in the independent variable is measured as the difference between the value at the end of fiscal year $t-1$ and $t-4$. Our sample is composed of 607 contract negotiations and 140 strikes involving at least 1,000 workers. The sample extends from January 1993 to December 2008. Independent variables have been standardized with mean 0 and a standard deviation of 1. Average marginal effects are reported as percentages. Standard errors are adjusted for clustering at the firm level; $t$-statistics of the estimated coefficients are in parenthesis with * and ** denoting significance levels of 10% and 5%, respectively.

Panel A: Dependent Variables Include Leverage and Fixed Effects

| | Book Leverage | | | Market Leverage | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Leverage | −8.920** | | −6.943* | −8.372** | | −5.600 |
| | (−2.33) | | (−1.88) | (−2.17) | | (−1.54) |
| Δ Leverage | | −8.551** | −7.771** | | −11.266** | −10.010** |
| | | (−3.05) | (−2.67) | | (−2.71) | (−2.25) |
| Time fixed effects | X | X | X | X | X | X |
| Industry fixed effects | X | X | X | X | X | X |
| State fixed effects | X | X | X | X | X | X |
| Union fixed effects | X | X | X | X | X | X |
| Pseudo-$R^2$ | 0.28 | 0.29 | 0.30 | 0.28 | 0.30 | 0.31 |
| Observations | 215 | 215 | 215 | 215 | 215 | 215 |

Continued

Table 1 continued

| Panel B: Dependent Variables Include Leverage, Control Variables, and Fixed Effects | | | | | | |
|---|---|---|---|---|---|---|
| | Book Leverage | | | Market Leverage | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Leverage | −11.167** | | −11.598** | −14.469** | | −11.186** |
| | (−3.16) | | (−2.81) | (−3.55) | | (−3.27) |
| Δ Leverage | | −5.064* | −0.263 | | −13.483** | −5.157 |
| | | (−1.80) | (−0.08) | | (−2.11) | (−0.96) |
| Unemployment | 2.757 | 0.743 | 4.129 | 4.251 | 0.539 | 4.665 |
| | (0.50) | (0.17) | (0.87) | (0.68) | (0.12) | (1.09) |
| Union size | 8.616** | 11.332** | 5.072** | 8.976** | 11.361** | 6.537** |
| | (3.81) | (3.86) | (2.99) | (3.93) | (4.02) | (2.96) |
| Equity volatility | −8.770* | −18.811** | −9.307** | −5.200 | −19.530** | −9.392** |
| | (−1.68) | (−2.42) | (−2.09) | (−1.02) | (−2.22) | (−2.20) |
| Equity returns | 4.810 | −1.600 | −4.046 | 1.669 | −15.230 | −7.782 |
| | (1.10) | (−0.26) | (−0. 046 | (0.36) | (−1.29) | (−0.85) |
| Δ Employees / assets | 0.573 | −0.541 | −2.666 | 1.287 | −1.380 | −1.865 |
| | (0.27) | (−0.14) | (−0.86) | (0.54) | (−0.34) | (−0.52) |
| Pension funding ratio | 2.620 | 5.783 | 5.689 | 3.989 | 6.108 | 6.389 |
| | (0.38) | (1.14) | (1.35) | (0.52) | (1.23) | (1.12) |
| Profit / assets | 0.540 | | −6.289 | 1.297 | | −3.950 |
| | (0.06) | | (−0.45) | (0.17) | | (−0.32) |
| Cash / assets | 8.404** | | 5.897** | 8.616** | | 5.463 |
| | (2.31) | | (2.59) | (2.83) | | (1.33) |
| Inventory / sales | −8.798* | | −8.418** | −8.477* | | −6.872* |
| | (−1.91) | | (−2.71) | (−1.73) | | (−1.69) |
| Dividend / assets | 11.467 | | 6.008 | 10.560 | | −7.802 |
| | (0.67) | | (0.69) | (0.57) | | (−0.62) |
| Sales | 7.649* | | 10.240** | 9.334* | | 8.135** |
| | (1.71) | | (2.87) | (1.73) | | (2.28) |
| Market-to-book | −4.990 | | 2.782 | −11.394 | | −5.899 |
| | (−0.65) | | (0.27) | (−1.00) | | (−0.63) |
| Z-Score | −11.253 | | −6.704 | −14.334 | | −6.029 |
| | (−1.06) | | (−0.84) | (−1.27) | | (−0.82) |
| Δ Profit / assets | | 0.969 | 3.121 | | −0.331 | 4.885 |
| | | (0.21) | (0.70) | | (−0.06) | (0.92) |
| Δ Cash / assets | | 2.381 | 0.207 | | 2.722 | 0.229 |
| | | (1.01) | (0.07) | | (1.10) | (0.11) |
| Δ Inventory / sales | | −4.090 | 0.176 | | −3.869 | 0.813 |
| | | (−1.15) | (0.08) | | (−1.01) | (0.38) |
| Δ Dividend / assets | | 6.479 | 1.196 | | 5.210 | 10.945 |
| | | (0.83) | (0.13) | | (0.68) | (1.47) |
| Δ Sales | | −9.668** | −4.587** | | −8.585** | −5.090** |
| | | (−2.42) | (−3.41) | | (−2.13) | (−3.67) |
| Δ Market-to-book | | 7.114 | 8.718 | | 7.737 | 7.198 |
| | | (1.29) | (1.27) | | (1.04) | (0.99) |
| Δ Z-Score | | −3.878 | 2.351 | | −4.819 | −0.551 |
| | | (−0.66) | (0.50) | | (−0.75) | (−0.09) |
| Time fixed effects | X | X | X | X | X | X |
| Industry fixed effects | X | X | X | X | X | X |
| State fixed effects | X | X | X | X | X | X |
| Union fixed effects | X | X | X | X | X | X |
| Pseudo-$R^2$ | 0.53 | 0.52 | 0.60 | 0.55 | 0.53 | 0.60 |
| Observations | 215 | 215 | 215 | 215 | 215 | 215 |

## Table 2 Leverage and the Likelihood of a Union Strike (Linear Probability Models)

This table presents estimation results of linear probability models of union strikes during a contract negotiation year $t$, conditional on the observation being included in the probit and logit models of previous tables. We report results of our analysis without control variables (Panel A) and with control variables (Panel B). All specifications include time, industry, state, and union fixed effects. Levels of independent variables are measured at the end of fiscal year $t-1$. The three-year change in the independent variable is measured as the difference between the value at the end of fiscal year $t-1$ and $t-4$. Our sample is composed of 607 contract negotiations and 140 strikes involving at least 1,000 workers. The sample extends from January 1993 to December 2008. Independent variables have been standardized with mean 0 and a standard deviation of 1. Standard errors are adjusted for clustering at the firm level; $t$-statistics of the estimated coefficients are in parenthesis with * and ** denoting significance levels of 10% and 5%, respectively.

Panel A: Dependent Variables Include Leverage and Fixed Effects

| | Book Leverage | | | Market Leverage | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Leverage | −9.936** | | −7.427 | −8.688** | | −5.175 |
| | (−1.97) | | (−1.47) | (−2.06) | | (−0.93) |
| Δ Leverage | | −10.991** | −9.199* | | −10.734** | −9.285** |
| | | (−2.27) | (−1.93) | | (−2.98) | (−2.26) |
| Time fixed effects | X | X | X | X | X | X |
| Industry fixed effects | X | X | X | X | X | X |
| State fixed effects | X | X | X | X | X | X |
| Union fixed effects | X | X | X | X | X | X |
| $R^2$ | 0.18 | 0.19 | 0.20 | 0.18 | 0.20 | 0.21 |
| Observations | 215 | 215 | 215 | 215 | 215 | 215 |

Continued

Table 2 continued

| Panel B: Dependent Variables Include Leverage, Control Variables, and Fixed Effects | | | | | | |
|---|---|---|---|---|---|---|
| | Book Leverage | | | Market Leverage | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Leverage | −13.226** | | −13.464** | −16.609** | | −15.830** |
| | (−2.11) | | (−2.07) | (−2.41) | | (−2.28) |
| Δ Leverage | | −2.508 | 3.586 | | −11.940* | −6.908 |
| | | (−0.51) | (0.61) | | (−1.85) | (−0.93) |
| Unemployment | 3.603 | 7.088 | 8.156 | 5.770 | 6.211 | 9.916 |
| | (0.51) | (1.09) | (1.23) | (0.84) | (0.98) | (1.52) |
| Union size | 10.655** | 15.082** | 11.166** | 10.961** | 15.378** | 11.067** |
| | (3.92) | (3.97) | (4.09) | (3.97) | (4.06) | (4.10) |
| Equity volatility | −3.568 | −7.313 | −7.992 | 0.958 | −7.281 | −5.224 |
| | (−0.55) | (−1.48) | (−1.18) | (0.13) | (−1.52) | (−0.72) |
| Equity returns | 1.462 | −5.662 | 0.903 | −0.451 | −17.914 | −11.065 |
| | (0.24) | (−0.54) | (0. 11) | (−0.07) | (−1.31) | (−1.02) |
| Δ Employees / assets | 0.229 | −2.712 | −1.075 | 0.960 | −2.739 | 0.972 |
| | (0.05) | (−0.55) | (−0.19) | (0.22) | (−0.59) | (0.18) |
| Pension funding ratio | 10.761 | 7.212 | 13.552 | 9.220 | 5.522 | 10.466 |
| | (1.17) | (0.85) | (1.49) | (1.01) | (0.65) | (1.15) |
| Pension funding ratio missing | −7.879 | 11.468 | 4.838 | 2.237 | 13.876 | 18.637 |
| | (−0.21) | (0.43) | (0.13) | (0.06) | (0.50) | (0.49) |
| Profit / assets | 5.560 | | 2.496 | 4.061 | | 2.567 |
| | (0.78) | | (0.25) | (0.59) | | (0.26) |
| Cash / assets | 10.181** | | 7.506 | 10.597** | | 8.132* |
| | (2.27) | | (1.62) | (2.41) | | (1.78) |
| Inventory / sales | −10.796* | | −12.887* | −11.482* | | −12.478* |
| | (−1.77) | | (−1.90) | (−1.88) | | (−1.86) |
| Dividend / assets | −11.825 | | −34.239* | −13.201 | | −35.067* |
| | (−0.72) | | (−1.84) | (−0.81) | | (−1.89) |
| Sales | 4.362 | | 3.539 | 2.750 | | 4.053 |
| | (0.64) | | (0.52) | (0.42) | | (0.60) |
| Market-to-book | −7.565 | | −2.482 | −14.823* | | −8.567 |
| | (−0.95) | | (−0.28) | (−1.85) | | (−0.96) |
| Z-Score | −0.140 | | −0.257 | −2.886 | | −3.684 |
| | (−0.02) | | (−0.03) | (−0.31) | | (−0.39) |
| Δ Profit / assets | | 0.405 | 3.341 | | −0.592 | 2.797 |
| | | (0.06) | (0.37) | | (−0.09) | (0.31) |
| Δ Cash / assets | | 0.348 | 0.499 | | 0.751 | 0.928 |
| | | (0.10) | (0.13) | | (0.21) | (0.24) |
| Δ Inventory / sales | | −4.233 | −3.847 | | −2.767 | −3.326 |
| | | (−1.07) | (−0.84) | | (−0.68) | (−0.73) |
| Δ Dividend / assets | | 14.834 | 30.494* | | 14.217 | 29.317* |
| | | (0.79) | (1.69) | | (0.79) | (1.65) |
| Δ Sales | | −8.665* | −10.996** | | −6.153 | −9.158** |
| | | (−1.73) | (−2.50) | | (−1.15) | (−2.00) |
| Δ Market-to-book | | 7.517 | −1.322 | | 900 | 1.916 |
| | | (0.85) | (−0.21) | | (0.97) | (0.30) |
| Δ Z-Score | | 1.798 | 0.343 | | −0.747 | −3.575 |
| | | (0.23) | (0.04) | | (−0.10) | (−0.39) |
| Time fixed effects | X | X | X | X | X | X |
| Industry fixed effects | X | X | X | X | X | X |
| State fixed effects | X | X | X | X | X | X |
| Union fixed effects | X | X | X | X | X | X |
| $R^2$ | 0.36 | 0.36 | 0.40 | 0.36 | 0.37 | 0.41 |
| Observations | 215 | 215 | 215 | 215 | 215 | 215 |

## 2. Pre-Contract-Negotiation Use of Leverage

If firms use leverage to improve their bargaining position relative to unions, we expect them to increase their leverage when facing a high probability of a strike in the years prior to a contract negotiation, occurring at some point during year $t$. To examine this possibility, we use a partial adjustment model similar to those used by **?**, **?**, and **?**. In this model, firms adjust their leverage toward a target between years $t-n$ and $t-1$:

$$\Delta Lev_{t-1} = \lambda(TgtLev_{t-1} - Lev_{t-n}) + \epsilon_{t-1}. \tag{1}$$

The change in either book or market leverage between $t-n$ and $t-1$ is defined as $\Delta Lev_{t-1} = Lev_{t-1} - Lev_{t-n}$ and $\lambda$ is the speed of adjustment. In the analysis we consider various time lags starting from the approximate time of the previous contract negotiation, $n=4$, to two years before the negotiation under examination, $n=2$.

We make a key modification to the standard model. We argue that the probability of a strike should affect the target leverage ratio of a unionized firm and therefore include the probability of a strike, $StkProb_{t-n}$ (defined as the probability, measured at $t-n$, that a firm will experience a strike during year $t$), as one of the determinants of the target leverage ratio, $TgtLev_{t-1}$

$$TgtLev_{t-1} = \beta X_{t-n} + \gamma StrikeProb_{t-n}, \tag{2}$$

where $X_{t-n}$ includes firm and industry characteristics that determine a firms target leverage ratio as in **?**. Inserting Equation 2 into Equation 1 produces our modified empirical model

$$\Delta Lev_{t-1} = (\beta \times \lambda)X_{t-n} + (\gamma \times \lambda)StrikeProb_{t-n} - \lambda Lev_{t-n} + \epsilon_{t-n}. \tag{3}$$

The parameter of interest in Equation 3 is $\gamma \times \lambda$. If this coefficient is positive, it indicates that firms are more likely to increase their leverage when facing a high strike probability prior to a contract negotiation.

We follow two different estimation procedures. In the first, we use and indicator variable set equal to one if a firm has experienced a strike in the previous five years (from $t-n-5$ to $t-n$, where $n=1,2,3$) as a proxy for the strike probability. In Panel A of Table 4, we report estimated coefficients: The speed of adjustment $\lambda$, the **?** target leverage variables ($\beta \times \lambda$), and the expected strike probability ($\gamma \times \lambda$). We report results for different time lags, $n=2,3,4$. We find that firms that have experienced a strike in the past are likely to increase their leverage leading to the next contract negotiation. For book and market leverage, estimated coefficients range from 0.009 to 0.044 and from 0.035 to 0.064, respectively.

As suggested by the results of the analysis discussed in Section 4.1, the strike probability is a function of pre-contract-negotiation changes in leverage, thus creating an endogeneity problem caused by the simultaneous correlation of the error term in Equation 3 with the error term in the strike probability model. To alleviate concerns about this possible endogeneity, we re-estimate the coefficients of Equation 3 by means of a two-step procedure. Equation 3 is essentially a "dummy endogenous variable model" as defined by **?**, where the endogenous dummy is represented by whether the firm is struck by the union during the contract negotiation in year $t$. In estimating the model, we follow the two-step procedure described in **?**. In the first step of the modified procedure, the coefficients of a non-linear strike probability model (typically a probit) are estimated with at least one regressor that satisfies the exclusion restriction. In the second step, the fit of the strike probability model is used as an instrument for the endogenous dummy. For the strike probability model, we used Model 3 (for book leverage) and Model 6 (for market leverage) from Table 3 in the main text (the use of other models yield quantitatively and qualitatively similar results.) We make one important modification and replace union size with "excess union size," which is defined as the natural logarithm of union size minus the natural logarithm of the median industry union size. We use Fama-French 12-industry definitions. Using 2-digit SIC codes yields similar results. All results are qualitatively unchanged if we use union size instead of excess union size. Excess union size is the instrumental variable used to identify the strike probability. We report estimated effects of our first step regression in Table 3 in Table 3.

This two step procedure require at least one variable in the first stage regression (strike probability) that is exogenous to variations of the left hand side variable in the second stage (the change in leverage). We define "excess union size" as the instrumental variable used to identify the strike probability, which we define as the natural logarithm of union size minus the natural logarithm of the median industry union size. We argue that excess union size may satisfy the exclusion restriction to the extent that it affects leverage only because it is positively related to the probability of a strike. Union coverage is correlated with industrial trends and thus union size could be correlated with leverage for structural reasons that are not related to the the propensity of unions to strike. In an attempt to mitigate this problem, we remove the level of union coverage across different industries, and only consider variation in union size over the industry median.

However, we are quick to note that there are other mechanisms by which excess union size may be correlated with leverage. For example, unions may be more likely to expand coverage at firms with greater rents, and greater rents might be correlated with greater debt capacity, even within industry groups. As it is not unambiguously obvious that our instrument satisfies the exclusion restriction, the reader should be careful about interpreting the regression results too strongly.

In Panel B of Table 4, we report estimated coefficients of the second step regression: The speed of adjustment $\lambda$, the **?** target leverage variables ($\beta \times \lambda$), and the expected strike probability ($\gamma \times \lambda$). We report results for different time lags, $n = 2, 3, 4$. We find that the expected strike likelihood is a positive and statistically significant predictor of subsequent pre-contract-negotiation changes in book and market leverage. For book and market leverage, estimated coefficients range, respectively, from 0.043 to 0.076 and from 0.056 to 0.144.

This analysis also addresses a question of reverse causality in our finding that leverage is negatively correlated with strike activity. In particular, if firms face a probable strike during the next contract negotiation, *and if leverage has no impact on the unions decision to strike*, then firms may choose to lower debt levels to improve their ability to weather an expected work stoppage. This goal can be at least partially accomplished by using cash to retire debt, which reduces current cash reserves that might otherwise be claimed by unions in upcoming contract negotiations, as argued by **?**.

In this alternative model, the coefficient estimate on changes in leverage in a probabilistic model of strikes would still be negative (as we show in Table 3 in the main text) but would be indicative of a reversed causality: a probable strike having caused firms to lower leverage. The analysis reported in this section helps rule out this alternative. In Table 4, we show that firms increase leverage when facing a high probability of a strike occurrence. This finding suggests that firms actively use leverage to improve their bargaining positions and do not decrease leverage to better weather a strike.

**Table 3 Strike Probabilities and Pre-Contract-Negotiation Changes in Leverage - First Stage Results**

This table contains results of the first sep of the two step estimation procedure of the change in leverage model in Equation 3 (second step estimation results are reported in Table 4). In this table we report the estimated marginal effects of probit models of union strikes where independent variables measured at years $t-2$, $t-3$, and $t-4$. $t$-statistics are in parentheses with * and ** denoting significance levels of 10% and 5%, respectively.

| | Book Leverage | | | Market Leverage | | |
|---|---|---|---|---|---|---|
| | t−2 | t−3 | t−4 | t−2 | t−3 | t−4 |
| Leverage | −15.157** | −5.163 | −12.990** | −39.138** | −19.096** | −14.851** |
| | (−2.82) | (−0.69) | (−2.28) | (−2.61) | (−2.72) | (−2.30) |
| Δ Leverage | −12.153** | −3.073 | 2.864 | −31.227** | −16.370** | 1.410 |
| | (−2.92) | (−0.54) | (0.53) | (−2.86) | (−2.26) | (0.27) |
| Unemployment | −8.540 | 1.772 | −2.501 | −15.720** | 23.113** | −1.190 |
| | (−1.58) | (0.25) | (−0.37) | (−2.01) | (2.24) | (−0.18) |
| "Excess" union size | 20.453** | 13.684** | 12.922** | 24.672** | 16.151** | 11.652** |
| | (4.54) | (4.39) | (3.39) | (3.52) | (2.40) | (3.14) |
| Equity volatility | −8.598 | 6.287 | 6.557 | 3.954 | 19.934** | 6.108 |
| | (−1.21) | (0.83) | (1.29) | (0.51) | (2.15) | (1.20) |
| Equity returns | −0.004 | 11.085** | 4.411 | −15.136* | 5.477 | 1.885 |
| | (−0.00) | (2.09) | (0.83) | (−1.66) | (0.87) | (0.31) |
| Δ Employees / assets | −0.929 | −21.490** | 4.991 | −3.647 | −19.621** | 5.564 |
| | (−0.17) | (−2.94) | (0.82) | (−0.58) | (−2.29) | (0.97) |
| Pension funding ratio | 26.754** | 9.720 | −3.285 | 31.068** | 7.635 | −4.068 |
| | (2.73) | (0.77) | (−0.24) | (2.29) | (0.51) | (−0.31) |
| Profits / assets | −15.519* | −18.866 | 4.537 | −34.984* | −18.745 | 5.590 |
| | (−1.73) | (−1.16) | (0.42) | (−1.93) | (−1.16) | (0.49) |
| Cash / assets | −6.468 | 24.083** | 8.650** | −10.386 | 25.551** | 8.452** |
| | (−1.25) | (3.02) | (2.10) | (−1.12) | (2.58) | (2.09) |
| Inventory / sales | −10.661** | −8.570 | −4.357 | −23.041** | −9.681 | −3.942 |
| | (−2.21) | (−1.29) | (−0.84) | (−2.11) | (−1.39) | (−0.77) |
| Dividends / assets | −7.491 | 5.977** | 12.638 | 13.164 | 11.253** | 12.971 |
| | (−0.41) | (2.05) | (0.65) | (0.63) | (2.42) | (0.71) |
| Sales | −9.155 | −10.398 | 7.287 | −12.095 | −9.516 | 10.588 |
| | (−0.87) | (−1.43) | (0.92) | (−0.92) | (−1.20) | (1.27) |
| Market-to-book | 9.167 | 5.024 | −18.735* | 2.545 | 3.655 | −25.191** |
| | (1.29) | (0.55) | (−1.88) | (0.41) | (0.34) | (−2.36) |
| Z-Score | −5.231 | −44.939** | −1.665 | −33.888* | −57.150** | −3.377 |
| | (−0.45) | (−2.78) | (−0.14) | (−1.90) | (−2.60) | (−0.29) |
| Δ Profits / assets | 8.819 | −8.928 | −5.310 | 11.479 | −15.654 | −5.564 |
| | (1.50) | (−0.99) | (−0.69) | (1.36) | (−1.37) | (−0.73) |
| Δ Cash / assets | 4.473 | −16.991** | 5.673 | −2.432 | −20.588** | 3.925 |
| | (1.15) | (−3.27) | (1.19) | (−0.55) | (−2.61) | (0.82) |
| Δ Inventory / sales | 0.819 | −9.712* | 3.268 | 3.717 | −5.415 | 4.185 |
| | (0.22) | (−1.82) | (0.74) | (0.92) | (−0.98) | (0.98) |
| Δ Dividends / assets | −3.550 | −12.911** | 11.055 | −8.860* | −16.203** | 9.042 |
| | (−0.21) | (−3.27) | (0.37) | (−1.90) | (−3.15) | (0.31) |
| Δ ln(Sales) | −6.849* | 8.354 | 8.215 | −8.485** | 14.232* | 8.052 |
| | (−1.75) | (1.39) | (1.48) | (−2.32) | (1.88) | (1.49) |
| Δ Market-to-book | −8.059* | −0.370 | 12.109** | −22.296** | −4.732 | 13.039** |
| | (−1.84) | (−0.09) | (2.64) | (−2.44) | (−1.11) | (2.67) |
| Δ Z-core | −4.551 | 17.816** | −4.904 | −4.738 | 14.715 | −5.238 |
| | (−0.66) | (2.20) | (−0.63) | (−0.62) | (1.39) | (−0.72) |
| Time fixed effects | X | X | X | X | X | X |
| Industry fixed effects | X | X | X | X | X | X |
| State fixed effects | X | X | X | X | X | X |
| Union fixed effects | X | X | X | X | X | X |
| Pseudo-$R^2$ | 0.52 | 0.59 | 0.45 | 0.62 | 0.64 | 0.45 |

## Table 4 Strike Probabilities and Pre-Contract-Negotiation Changes in Leverage

This table reports estimation results of a partial adjustment model of leverage. In this model firms adjust their leverage towards a target over the years between $t-n$ and $t-1$,

$$\Delta Lev_{t-1} = \lambda(TgtLev_{t-1} - Lev_{t-n}) + \epsilon_{t-1}.$$

The change in either book or market leverage between $t-n$ and $t-1$ is defined as $\Delta Lev_{t-1} = Lev_{t-1} - Lev_{t-n}$ and $\lambda$ is the speed of adjustment. We modify the standard model by including the probability of a strike, $StkProb_{t-n}$ (defined as the probability, measured at $t-n$, that a firm will experience a strike during year $t$), as one of the determinants of the target leverage ratio,

$$TgtLev_{t-1} = \beta X_{t-n} + \gamma StrikeProb_{t-n},$$

where $X_{t-n}$ includes firm and industry characteristics that determines a firm's target leverage ratio as specified in **?**. In Panel A we estimate the change in leverage regression using and indicator variable set equal to one if a firm has experienced a strike in the previous five years (from $t-n-5$ to $t-n$) as a proxy for the strike probability. In Panel B we estimate the coefficients of the model by means of an instrumental variable two-step procedure. In the first step, we estimate the coefficients of a the strike probability model similar to Models 3 and 6, for market and book leverage, respectively, of Table 3 in the main text. In this specification excess union size satisfies the exclusion restriction as it affects leverage only because it is positively related to the probability of a strike. Results of the first-step estimation are reported in Table 3. Estimated coefficients for the the second step regression (the speed of adjustment $\lambda$, $\beta \times \lambda$, and $\gamma \times \lambda$) are reported in this table. Our sample is composed of 607 contract negotiations and 140 strikes involving at least 1,000 workers. Contract negotiation data are from the BNA Labor Plus database. Strike data are from the BNA Labor Plus and BLS Work Stoppage databases. Accounting and stock market data are from the COMPUSTAT and CRSP databases, respectively. The sample extends from January 1993 to December 2008. $t$-statistics are in parenthesis with * and ** denoting significance levels of 10% and 5%, respectively.

Panel A: Change in Leverage for Firms Which Experienced Strike

| | Δ Book Leverage | | | Δ Market Leverage | | |
|---|---|---|---|---|---|---|
| | t-2 to t-1 | t-3 to t-1 | t-4 to t-1 | t-2 to t-1 | t-3 to t-1 | t-4 to t-1 |
| Strike in last 5 years | 0.009 | 0.044** | 0.031* | 0.035* | 0.061** | 0.064** |
| | (0.73) | (2.55) | (1.94) | (1.67) | (2.53) | (2.36) |
| Industry median leverage | 0.104 | −0.004 | 0.059 | −0.010 | −0.069 | 0.049 |
| | (1.04) | (−0.04) | (0.44) | (−0.10) | (−0.65) | (0.40) |
| Marginal tax rate | −0.123** | −0.225** | −0.035 | −0.132* | −0.094 | −0.050 |
| | (−2.84) | (−2.91) | (−0.57) | (−1.95) | (−1.17) | (−0.63) |
| Profit / assets | 0.518** | 0.675** | 0.414** | 0.578* | 0.547** | 0.587** |
| | (2.39) | (3.60) | (2.06) | (1.93) | (1.98) | (1.99) |
| Market−to−book | −0.017 | 0.002 | 0.001 | −0.032* | −0.031 | −0.013 |
| | (−1.28) | (0.12) | (0.03) | (−1.69) | (−1.40) | (−0.58) |
| Assets | 0.078** | 0.094** | 0.126** | 0.076 | 0.092* | 0.127** |
| | (2.17) | (2.20) | (2.65) | (1.55) | (1.91) | (2.10) |
| Depreciation / assets | 0.528 | 1.714** | 1.669** | 0.827 | 0.534 | 1.927* |
| | (0.89) | (2.20) | (2.32) | (0.96) | (0.59) | (1.64) |
| Fixed assets / assets | −0.086 | −0.170 | −0.199** | −0.152 | −0.213 | −0.369** |
| | (−1.09) | (−1.19) | (−2.05) | (−1.21) | (−1.49) | (−2.45) |
| R & D / sales | 0.360 | −0.269 | −0.440 | 0.618 | 0.385 | −1.227 |
| | (0.72) | (−0.51) | (−0.71) | (0.70) | (0.68) | (−1.25) |
| R & D null dummy | −0.026 | −0.059** | −0.060** | 0.007 | −0.011 | −0.011 |
| | (−1.64) | (−2.45) | (−2.59) | (0.28) | (−0.44) | (−0.35) |
| Dividends / assets | 0.427 | −0.349** | −0.118 | 0.272 | −0.505** | −0.744** |
| | (0.66) | (−2.18) | (−0.48) | (0.29) | (−2.46) | (−2.55) |
| Z-Score | 0.019 | −0.013 | 0.032 | 0.014 | 0.011 | 0.036 |
| | (0.89) | (−0.49) | (1.24) | (0.47) | (0.38) | (1.09) |
| Speed of adjustment | −0.270** | −0.468** | −0.506** | −0.251** | −0.257** | −0.358** |
| | (−5.19) | (−5.42) | (−7.39) | (−3.32) | (−3.27) | (−3.73) |
| Time fixed effects | X | X | X | X | X | X |
| Industry fixed effects | X | X | X | X | X | X |
| State fixed effects | X | X | X | X | X | X |
| Union fixed effects | X | X | X | X | X | X |
| Adjusted-$R^2$ | 0.32 | 0.36 | 0.46 | 0.29 | 0.34 | 0.36 |

Continued

Table 4 continued

| Panel B: Two-Step Procedure | | | | | | |
|---|---|---|---|---|---|---|
| | Δ Book Leverage | | | Δ Market Leverage | | |
| | t-2 to t-1 | t-3 to t-1 | t-4 to t-1 | t-2 to t-1 | t-3 to t-1 | t-4 to t-1 |
| Strike likelihood | 0.043** | 0.053** | 0.076** | 0.056* | 0.095** | 0.144** |
| | (2.04) | (1.97) | (2.25) | (1.68) | (2.04) | (2.99) |
| Industry median leverage | 0.123 | 0.057 | 0.133 | 0.016 | −0.094 | 0.128 |
| | (1.41) | (0.71) | (1.19) | (0.18) | (−0.94) | (1.11) |
| Marginal tax rate | −0.112** | −0.083 | −0.034 | −0.148** | −0.060 | −0.041 |
| | (−3.02) | (−1.59) | (−0.65) | (−2.53) | (−0.83) | (−0.55) |
| Profit / assets | 0.482** | 0.351** | 0.323* | 0.494* | 0.442* | 0.450* |
| | (2.78) | (2.24) | (1.90) | (1.85) | (1.84) | (1.75) |
| Market-to-book | −0.016 | 0.010 | 0.014 | −0.033* | −0.030 | −0.003 |
| | (−1.50) | (0.98) | (1.13) | (−1.90) | (−1.56) | (−0.15) |
| Assets | 0.069** | 0.060* | 0.122** | 0.075* | 0.089** | 0.133** |
| | (2.23) | (1.80) | (2.88) | (1.72) | (1.99) | (2.63) |
| Depreciation / assets | 0.481 | 0.955* | 1.359** | 0.776 | 0.722 | 1.052 |
| | (0.99) | (1.79) | (2.19) | (1.03) | (0.87) | (1.13) |
| Fixed assets / assets | −0.098 | −0.149* | −0.137* | −0.159 | −0.260** | −0.264** |
| | (−1.51) | (−1.83) | (−1.70) | (−1.40) | (−2.29) | (−2.05) |
| R & D / sales | 0.220 | −0.191 | −0.656 | 0.537 | 0.579 | −1.153 |
| | (0.56) | (−0.46) | (−1.29) | (0.75) | (1.07) | (−1.50) |
| R & D null dummy | −0.028** | −0.042** | −0.077** | 0.001 | −0.003 | −0.038 |
| | (−2.06) | (−2.51) | (−3.93) | (0.06) | (−0.15) | (−1.32) |
| Dividends / assets | 0.450 | −0.337** | −0.197 | 0.143 | −0.510** | −0.768** |
| | (0.93) | (−3.33) | (−1.04) | (0.17) | (−2.69) | (−3.31) |
| Z-Score | 0.019 | −0.006 | 0.036 | 0.017 | 0.018 | 0.048 |
| | (0.99) | (−0.29) | (1.49) | (0.62) | (0.65) | (1.60) |
| Speed of adjustment | −0.278** | −0.431** | −0.535** | −0.306** | −0.315** | −0.427** |
| | (−5.62) | (−6.94) | (−8.78) | (−4.53) | (−4.75) | (−5.25) |
| First-step control variables | X | X | X | X | X | X |
| Time fixed effects | X | X | X | X | X | X |
| Industry fixed effects | X | X | X | X | X | X |
| State fixed effects | X | X | X | X | X | X |
| Union fixed effects | X | X | X | X | X | X |
| Adjusted-$R^2$ | 0.35 | 0.45 | 0.52 | 0.36 | 0.43 | 0.50 |

# 3. Changes to the Balance Sheet and Cash Flow Statement Surrounding Contract Negotiations

**Table 5 Changes to the Balance Sheet Surrounding Contract Negotiations**

This table shows the change in balance sheet items, scaled by total assets as measured at the beginning of the year, for the four-year period surround contract negotiations. Panel A shows results for firms that do not experience a strike, and Panel B shows results for firms that do. The sample extends from January 1993 to December 2008.

| | Panel A: No-Strike Firms | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | $t-4$ | $t-3$ | $t-2$ | $t-1$ | $t$ | $t+1$ | $t+2$ | $t+3$ | $t+4$ |
| Δ Book leverage | 0.003 | 0.002 | 0.002 | 0.001 | 0.009 | −0.001 | −0.005 | 0.002 | 0.003 |
| Δ Total assets | 0.107 | 0.102 | 0.123 | 0.094 | 0.085 | 0.085 | 0.075 | 0.068 | 0.082 |
| Δ Current assets | 0.034 | 0.025 | 0.031 | 0.026 | 0.027 | 0.020 | 0.024 | 0.018 | 0.021 |
| Δ Physical Assets | 0.035 | 0.032 | 0.038 | 0.023 | 0.021 | 0.023 | 0.018 | 0.022 | 0.020 |
| Δ Intangible assets | 0.030 | 0.024 | 0.035 | 0.031 | 0.022 | 0.030 | 0.025 | 0.018 | 0.029 |
| Δ Other assets | 0.009 | 0.021 | 0.019 | 0.014 | 0.015 | 0.012 | 0.008 | 0.010 | 0.011 |
| Δ Total debt | 0.033 | 0.031 | 0.040 | 0.029 | 0.035 | 0.026 | 0.022 | 0.024 | 0.024 |
| Δ Equity | 0.034 | 0.029 | 0.041 | 0.031 | 0.023 | 0.033 | 0.024 | 0.017 | 0.026 |
| Δ Other liabilities | 0.040 | 0.041 | 0.041 | 0.034 | 0.027 | 0.027 | 0.029 | 0.027 | 0.031 |
| Δ Retained earnings | 0.026 | 0.023 | 0.023 | 0.025 | 0.018 | 0.019 | 0.017 | 0.018 | 0.015 |
| Observations | 382 | 388 | 403 | 410 | 425 | 378 | 339 | 303 | 270 |
| | Panel B: Strike Firms | | | | | | | | |
| | $t-4$ | $t-3$ | $t-2$ | $t-1$ | $t$ | $t+1$ | $t+2$ | $t+3$ | $t+4$ |
| Δ Book leverage | −0.004 | −0.003 | −0.011 | −0.002 | −0.001 | 0.008 | 0.003 | 0.012 | 0.007 |
| Δ Total assets | 0.096 | 0.108 | 0.069 | 0.080 | 0.061 | 0.086 | 0.064 | 0.068 | 0.068 |
| Δ Current assets | 0.023 | 0.012 | 0.013 | 0.030 | 0.010 | 0.016 | 0.004 | 0.028 | 0.020 |
| Δ Physical Assets | 0.030 | 0.035 | 0.018 | 0.023 | 0.017 | 0.028 | 0.023 | 0.012 | 0.021 |
| Δ Intangible assets | 0.021 | 0.033 | 0.015 | 0.009 | 0.020 | 0.018 | 0.021 | 0.013 | 0.015 |
| Δ Other assets | 0.022 | 0.028 | 0.023 | 0.017 | 0.013 | 0.025 | 0.016 | 0.016 | 0.013 |
| Δ Total debt | 0.031 | 0.029 | 0.014 | 0.024 | 0.023 | 0.035 | 0.020 | 0.024 | 0.030 |
| Δ Equity | 0.027 | 0.039 | 0.018 | 0.018 | 0.016 | 0.026 | 0.018 | 0.011 | 0.017 |
| Δ Other liabilities | 0.038 | 0.040 | 0.037 | 0.038 | 0.022 | 0.025 | 0.026 | 0.033 | 0.021 |
| Δ Retained earnings | 0.017 | 0.020 | 0.013 | 0.012 | 0.021 | 0.025 | 0.014 | 0.004 | 0.016 |
| Observations | 111 | 115 | 121 | 125 | 128 | 120 | 103 | 98 | 84 |

## Table 6 Changes to the Cash Flow Statement Surrounding Contract Negotiations

This table shows the change in cash flow items, scaled by total assets as measured at the beginning of the year, for the four-year period surround contract negotiations. Panel A shows results for firms that do not experience a strike, and Panel B shows results for firms that do. The sample extends from January 1993 to December 2008.

| | Panel A: No-Strike Firms | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | $t-4$ | $t-3$ | $t-2$ | $t-1$ | $t$ | $t+1$ | $t+2$ | $t+3$ | $t+4$ |
| Δ Book leverage | 0.003 | 0.002 | 0.002 | 0.001 | 0.009 | −0.001 | −0.005 | 0.002 | 0.003 |
| Operating activities | 0.110 | 0.108 | 0.102 | 0.102 | 0.096 | 0.098 | 0.103 | 0.097 | 0.094 |
| Investing activities | −0.097 | −0.090 | −0.095 | −0.085 | −0.080 | −0.079 | −0.072 | −0.075 | −0.067 |
| Capex and related | −0.074 | −0.070 | −0.068 | −0.062 | −0.061 | −0.060 | −0.059 | −0.057 | −0.054 |
| M&A and related | −0.023 | −0.020 | −0.027 | −0.022 | −0.018 | −0.018 | −0.014 | −0.018 | −0.013 |
| Financing activities | −0.010 | −0.016 | −0.006 | −0.012 | −0.011 | −0.017 | −0.023 | −0.020 | −0.021 |
| Net total debt issuance | 0.018 | 0.014 | 0.020 | 0.017 | 0.018 | 0.012 | 0.011 | 0.012 | 0.012 |
| Net equity issuance | −0.006 | −0.008 | −0.006 | −0.009 | −0.011 | −0.010 | −0.011 | −0.014 | −0.012 |
| Dividends | −0.018 | −0.019 | −0.018 | −0.018 | −0.017 | −0.017 | −0.018 | −0.018 | −0.018 |
| Other financing | −0.004 | −0.003 | −0.002 | −0.003 | −0.001 | −0.002 | −0.004 | 0.000 | −0.003 |
| Exchange rate effect | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Change in cash | 0.003 | 0.002 | 0.002 | 0.005 | 0.005 | 0.003 | 0.008 | 0.002 | 0.006 |
| Observations | 382 | 388 | 403 | 410 | 425 | 378 | 339 | 303 | 270 |
| | Panel B: Strike Firms | | | | | | | | |
| | $t-4$ | $t-3$ | $t-2$ | $t-1$ | $t$ | $t+1$ | $t+2$ | $t+3$ | $t+4$ |
| Δ Book leverage | −0.004 | −0.003 | −0.011 | −0.002 | −0.001 | 0.008 | 0.003 | 0.012 | 0.007 |
| Operating activities | 0.094 | 0.099 | 0.092 | 0.095 | 0.089 | 0.091 | 0.096 | 0.093 | 0.085 |
| Investing activities | −0.077 | −0.089 | −0.073 | −0.077 | −0.076 | −0.079 | −0.081 | −0.072 | −0.082 |
| Capex and related | −0.061 | −0.061 | −0.059 | −0.061 | −0.059 | −0.057 | −0.059 | −0.051 | −0.052 |
| M&A and related | −0.016 | −0.028 | −0.014 | −0.016 | −0.016 | −0.022 | −0.022 | −0.022 | −0.030 |
| Financing activities | −0.015 | −0.005 | −0.018 | −0.012 | −0.012 | −0.012 | −0.012 | −0.014 | −0.007 |
| Net total debt issuance | 0.011 | 0.015 | 0.009 | 0.012 | 0.015 | 0.017 | 0.016 | 0.013 | 0.021 |
| Net equity issuance | −0.007 | −0.003 | −0.007 | −0.006 | −0.010 | −0.012 | −0.012 | −0.012 | −0.009 |
| Dividends | −0.015 | −0.014 | −0.014 | −0.014 | −0.014 | −0.014 | −0.014 | −0.013 | −0.014 |
| Other financing | −0.005 | −0.003 | −0.006 | −0.005 | −0.003 | −0.004 | −0.001 | −0.002 | −0.005 |
| Exchange rate effect | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Change in cash | 0.002 | 0.004 | 0.001 | 0.006 | 0.001 | 0.000 | 0.003 | 0.006 | −0.004 |
| Observations | 111 | 115 | 121 | 125 | 128 | 120 | 103 | 98 | 84 |

# 4. Post-Contract Negotiation Changes in Leverage - With Standard Errors

**Table 7 Post-Contract Negotiation Changes in Leverage Controlling for Determinants of Capital Structure - Standard Errors**

This table repeats the analysis of Table 8 in the paper. However, standard errors, rather than $t$-statistics, are reported in parentheses, with * and ** denoting significance levels of 10% and 5%, respectively.

| Panel A: Independent Variable is Δ Book Leverage | | | | |
|---|---|---|---|---|
| | Years Relative to Strike Year | | | |
| | $t$+1 | $t$+2 | $t$+3 | $t$+4 |
| Strike | 0.011 | 0.021* | 0.032** | 0.035** |
| | (0.007) | (0.011) | (0.013) | (0.016) |
| Adjusted-$R^2$ | 0.21 | 0.13 | 0.28 | 0.27 |
| Observations | 538 | 486 | 443 | 396 |
| **Panel B: Independent Variable is Δ Book Leverage** | | | | |
| | Years Relative to Strike Year | | | |
| | $t$+1 | $t$+2 | $t$+3 | $t$+4 |
| Strike: union win | 0.034* | 0.057* | 0.072** | 0.067* |
| | (0.020) | (0.032) | (0.031) | (0.038) |
| Strike: no winner | 0.014* | 0.021 | 0.032** | 0.038* |
| | (0.008) | (0.013) | (0.016) | (0.020) |
| Strike: company win | -0.002 | 0.010 | 0.016 | 0.016 |
| | (0.008) | (0.016) | (0.019) | (0.025) |
| Adjusted-$R^2$ | 0.21 | 0.14 | 0.28 | 0.27 |
| Observations | 538 | 486 | 443 | 396 |
| **Panel C: Independent Variable is Δ Market Leverage** | | | | |
| | Years Relative to Strike Year | | | |
| | $t$+1 | $t$+2 | $t$+3 | $t$+4 |
| Strike | 0.013 | 0.020 | 0.033** | 0.048** |
| | (0.009) | (0.014) | (0.016) | (0.022) |
| Adjusted-$R^2$ | 0.45 | 0.48 | 0.53 | 0.51 |
| Observations | 538 | 486 | 443 | 396 |
| **Panel D: Independent Variable is Δ Market Leverage** | | | | |
| | Years Relative to Strike Year | | | |
| | $t$+1 | $t$+2 | $t$+3 | $t$+4 |
| Strike: union win | 0.049** | 0.039 | 0.053* | 0.068 |
| | (0.019) | (0.032) | (0.030) | (0.044) |
| Strike: no winner | 0.016* | 0.020 | 0.032* | 0.061** |
| | (0.010) | (0.016) | (0.018) | (0.024) |
| Strike: company win | -0.006 | 0.013 | 0.027 | 0.016 |
| | (0.013) | (0.020) | (0.028) | (0.039) |
| Adjusted-$R^2$ | 0.45 | 0.48 | 0.53 | 0.51 |
| Observations | 538 | 486 | 443 | 396 |
| | All Panels Include | | | |
| Control variables | X | X | X | X |
| Time fixed effects | X | X | X | X |
| Industry fixed effects | X | X | X | X |
| State fixed effects | X | X | X | X |
| Union fixed effects | X | X | X | X |