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公司策略對談判力及罷工後公司營運績效之影響

Corporate Strategies, Bargaining Power, and Post-Strike
Operating Performance

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本論文係陳彥行君（D93723001）在國立臺灣大學財務
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謝辭

念博士是一個沒有退路的決定，也是一種對自己毅力與耐力的嚴格考驗。五年來雖然修了很多課，在老師帶領下閱讀了許多頂尖期刊的文章，但是開始做研究後還時常常發現自己在學問上的不足與無知，所以拿到這個學位對我來說只是踏出學術研究的第一步。我非常感謝這一路上幫助我、鼓勵我的老師與同學們，他們的過人之處也提供了我往後要繼續努力的方向。

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中文摘要

　　本文利用美國 1982 至 2006 年間所發生的 235 個罷工事件探討公司策略對於罷工時勞資間的談判力及罷工後營運績效的影響。實證結果顯示平均而言樣本公司在罷工當季營運績效顯著下降，但是在罷工後第一季便回到正常水準。有趣的是，樣本公司在罷工後第二季開始直到第七季營運績效反而領先同業，這種現象在規模較大，時間較長的罷工樣本中更為明顯。進一步分析顯示罷工後營運績效的提升可能來自於罷工結束時資方取得勞動成本較低的新契約。此外，罷工前後營運績效的改變與公司的策略有關。在罷工前降低現金比率及負債比率或囤積存貨的公司及非相關多角化的公司相對於勞方擁有較強的談判力，因此較有可能得到工會在薪資及福利上的讓步，從而在罷工後有較佳的營運績效。

關鍵字: 工會、罷工、談判力、公司策略、營運績效。

Abstract

I study how corporate policies will affect firm's bargaining power against union during strike by examining the post-strike operating performance. The sample consists of 235 struck firms in the United State from 1982 to 2006. Notwithstanding a substantial drop in ROA is found in the strike quarter, struck firms on average exhibit superior performance starting from the second post strike quarter. As a result, there are no significant performance changes from pre-strike year to strike year, suggesting that in a substantial portion of struck firms, the strike cost is mostly offset or dominated by the gain form union wage concession at the settlement. This result holds for strikes coming in large scale and long durations. Regression analysis reveals that, firms decreasing their debt ratio and cash ratio or increasing their inventory in terms of finished goods prior to strike and firms engaging in unrelated diversifications tend to have better bargaining power during strike and therefore are more likely to perform better after settlement. I also show that some institutional and industrial factors related to the bargaining power between union and struck firms can also have impact on the post-strike operating performance. These impacts are economically significant as well.

Keywords: Union, Labor Strike, Bargaining Power, Corporate Strategy, Operating Performance.

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1. Introduction

There is considerable evidence to suggest that the existence of labor union will have negative impact on firms' productivity and profitability. The lower productivity may arise from the adoption of union work rules which is aimed to protect jobs of union members. The decrease of profitability could be a result of higher wages demanded by union member. A recent study indicates that, on average, firms will lose 10% of their market value following a union election victory (Lee and Mas, 2009). Due to the fear of union, it has been shown that managers of union firms tend to strategically use corporate policy to gain bargaining advantage against union. For example, to request for wage concession, firms may cut dividend as well as manager compensation prior to wage negotiation to convince union that they have financial trouble and need a lower labor cost to survive (DeAngelo and Deangelo, 1991). Alternatively, union firms can hold a lower cash level or a higher debt ratio to shelter corporate income, because a high cash level or net income can be used by union as an excuse to demand more benefit. (Klasa, Maxwell and Ortiz-Molina, 2009; Matsa, 2009).[1] The benefit of a superior bargaining power provided by these corporate strategies may come from a lower wage demand by union and therefore a lower probability of strike, as suggested by Klasa, et al. Yet, if the strike still happened, it is also possible that these strategies can make strike less harmful, or make the settlement outcome more favorable to firm. However, we have little understanding from existing literatures about the extent to which the bargaining power provided by corporate strategies can affect firms' cost and benefit associated with labor strikes. To gain more insight into this issue, I use a sample consisting of 235 struck firms in the U.S to study the effectiveness of these corporate strategies against strikes by analyzing the

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[1] There are also circumstances in which manager and union have common interest. Atanassov and Kim (2009) show that union and manager in financial crisis firm may form alliances to prevent layoffs in both groups via value-reducing asset sales.

relationship of post-strike operating performance and corporate policies prior to strike.

The reason I focus on labor strikes is that strikes are perhaps the most drastic union activity. Owning to a decline of union power, there are fewer strikes in private company after 2000. Nevertheless, by withdrawing all union labor force from production lines, a strike can severely damage struck firm's operation and lead to huge loses once it happened. This feature can also explain why strikes in large companies often draw public and academic attentions. For instance, it is reported that Boeing could lose one million U.S. dollar per day when it was struck by 27,000 Seattle workers which belong to the International Association of Machinists in September, 2008. Also, it is estimated that, during the period of 1962 to 1982, strikes involving more than 1,000 workers will lead to a 4.1 percent drop in struck firm's stock price on average (Becker and Olson, 1986). Strikes may as well induce productivity declines in struck and its linked industry (McHugh, 1991). Therefore, if a firm can enhance its bargaining power with union by taking some corporate policies, these strategies should not only reduce the probabilities of strike, but also should they make firms more robust to strikes and have higher chances to win the settlement.

I mainly consider four types of corporate strategies in the literature: the low cash holding strategy, the high debt ratio strategy, the diversification strategy, and finally the inventory strategy. The first and second strategy can temper union's wage demand as they reduce the size of pie left on the bargaining table. The third strategy can make firm more robust to strike cost since diversification firms can cross subsidizing strike cost among operating segments (Rose, 1989; Rose, 1991). The last strategy directly reduced strike cost as firms building up a stockpile of inventories can still serve their customer during a strike (De Fusco and Fuess, 1991; Kramer and Vasconcellos, 1996). My prediction is that, if these strategies do make strike less harmful and help firms win a settlement in terms of obtaining a lower labor cost, firms who adopt these

strategies should be associated with a higher post strike operating performance.

Using the operating performance to measure the bargaining power against union provided by corporate policies during strike has the following advantages. First, it can capture all potential cost and gain associate with strike and the following settlement, including the change of sales and labor cost. Next, unlike sales or wage bills, the data required to compute operating performance is ready in the COMPUSTAT database and there are well established methodologies to measure the abnormal changes in operating performance, such as Lie (2005). Lastly, we can separately investigate the short run impact of strike and the long run effect by examining the post strike operating patterns. Most likely, firms will lose profit during strike, but we are not sure about the existence and direction of long run effect. Will a typical struck firm gain competitive advantage via lower wage or will it suffer from losing customers in the post-strike period? If there is a long run effect, how large is the magnitude compared with the short run effect? How long will the effect last? Inspecting the time series of earning performance of the struck firm can provide insight into the above questions.

I collect 235 strike samples in the U.S. from 1980 to 2006. The data is taken from the Bureau of Labor Statistics (BLS). Quarterly return on asset (ROA) is used to be the main operating performance measure as suggested by Barber and Lyon (1996). To avoid any bias from the predictable part of operating performance ex ante, I construct matching samples using the approach proposed by Lie (2005). Consistent to the notion that holding less cash and more debt can gain bargaining advantage against union, struck firms exhibit a lower cash ratio and a higher debt ratio compared with their industry peers. However, I do not find any significantly changes of these financial characteristic prior to strike. This finding is consistent with Maxwell and Ortiz-Molina (2009), who suggest that rather than decrease cash holding prior to strike, union firms chooses to hold a less cash at all time.

Before examining the bargaining power provided by corporate strategies, some patterns of post-strike operating performance are observed. On average, the change in ROA from the quarter prior to strike to strike quarter is -0.0031, which is amount to a percent change of -9.4%, suggesting that the strike cost is a substantial one. However, the operating performance rebound to the pre-strike level immediately in the next quarter. Starting from the second quarter, the struck firms perform better than their matching samples. The superior performance can last for six quarters. It seems that, at least for some firms, the negative effect of strike is small and short-lived. Moreover, the superior performance indicate that a substantial portion of struck firms do gain competitive advantage from a favorable new labor contract. The result from subsample analysis suggests that this pattern holds as well for strikes coming in large scale and long duration.

In the regression analysis, I find that firms who decreasing their cash holding or increasing inventories in terms of finished products prior to strike tend to associated with higher post-strike ROA. By contrast, firms who increase their debt ratio prior to the strike tend to experience a decline in post-strike operating performance. It seems that a higher debt ratio will deteriorate firms' bargaining power given that strike happened. I also find only firms diversifying into unrelated industries can enjoy better post-strike performance. On the contrary, firms diversifying into related industry seem to have week bargaining power against union and perform worse after the settlement. Additionally, I find some institutional and industrial factors which are related to the bargaining power between union and strike firms can also have impact on the post-strike operating performance. In particular, firms operating in states with low unemployment rate, firms in lowly concentrate industry, and firms with higher market share seems to have bargaining advantage with union and therefore enjoy a better post-strike operating performance.

To address for the concern that the superior post-strike operating performance is a result such that union tend to strike firms with higher expected future profitability, I examine the post-strike pattern of cost of good to sales ratio. The result suggests a significant drop in cost of good to sales ratio in the post-strike quarter after controlling for industry and seasonal effect. This finding corroborates that the superior post-strike operating performance is lead by union wage concession rather than the ex anti selection mechanism.

The contribution of this paper is two fold. First, traditional labor economists focus on the estimation of strike cost. Few studies had address for the potential gains of winning wage concession. The result in this paper suggests that this gain can be a substantial and long-lasting one. Second, I analyze the cross sectional variation of the strike and settlement effect on firms' performance and finds that firm can strategically use corporate policies to reduce the strike cost and increased the potential gains from wage settlement. This finding shed additional insight into the existing literature regarding the interaction of labor union and corporate policy.

The remainder of the paper is organized as follows. In section 2, I describe the data and present some sample characteristics. Section 3 presents the post-strike operating performance patterns. The relationship of bargaining power provided by corporate policies and post-strike operating performance is examined in section 4. Section 5 concludes.

2. Data description

I collect the strike samples in the period of 1982 to 2006 from the BLS.[2] There are about 1,000 strikes involving more than 1,000 workers respectively during this

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[2] The 1993 to 2006 strike sample is obtained from BLS website. I thank Elizabeth Ashack, an economist from BLS, who kindly providing me a strike sample from 1982 to 1992.

sample period. After excluding strikes in public sectors and those without sufficient data in COMPUSTAT to compute operating performance, 235 strikes were left in the final sample. Table 1 presents the sample distribution across calendar years. First note that the sample size gradually decreases over the years. About 50% of sample comes from the early years before 1992. This is consistent with the decreasing trend in total number of strike activities in the U.S. since 1980s. For instance, there are 96 strikes reported by BLS in 1982, and the number drops to 20 in 2006. Regarding the fraction of sample strikes to total strikes in a given year, there is a peak of 55% in 1995. The sample coverage rate is lower in 1980s, because the data source is somewhat incomplete before 1992. The smaller coverage rate after 2000 may attribute to the increasing fraction of public section strikes to total strikes and the exclusion of strikes in public sector in my analysis.

The sample distribution among industries is shown in Table 2. Industries are classified by two-digit SIC code. We observe that about 72% of the sample comes from mining and manufacturing industry (SIC code starting with 1, 2 or 3). First note that the transportation equipment industry (SIC code 37) contribute about one third of the sample, which pales all other industries. The second place is the machinery and computer equipment industry (12%). We also note that there are quite a few samples from the utility industry. The communication, transportation and electric and gas industry share about 18% of the sample almost evenly.

In panel A of Table 3, I demonstrate some strike characteristics of the sample. The number of workers involving in a strike, which ranges from 1000, the lower bound to be included in the BLS data, to 700,000 (AT&T work stoppage in 1983), has a mean of 12,000 and a median slightly below 3,000. Since the number of potential strikers will naturally be limited by the number of employees hired by the struck firm, the large range in the number of strikers comes from the variation of the number of

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employees. To control for such kind of size effect, I also report the striker to employee ratio, which is the number of strikers divided by the total employees measured at the beginning of the strike year. This ratio should be bounded between 0 and 1. However, I find six sample firms with a striker to employee ratio greater than 1, which can be a result of data error or a layoff in sample firms prior to strike.[3] To be conservative, I set the striker to employee ratio of the six firms as missing. The mean and median of the striker ratio is 0.18 and 0.08, respectively. The duration of a strike (in years) also displays huge variety. There are one day strikes as well as some lasting for years. The mean duration is 0.144 years (53 days), and a half of the strike sample ended within 0.058 years (21 days).

Panel B of Table 3 demonstrates the financial characteristics of sample firms, including levels as well as changes of cash ratio, debt ratio, and inventory to sales ratio, all of these variables are evaluated at the fiscal year end preceding the strike. For the ease of comparison, I also report the industry adjusted value of these variables in panel C. The industry adjusted value is equal to unadjusted value minus industry median at four-digit SIC level. In terms of the level variables, we first note that the median of adjusted cash ratio of struck firms is -0.009, and the median adjusted debt ratio is 0.017. Both of these values are significant at 5% level. Since stronger unions are more likely to strike firms, this result is consistent with the notion that firms facing strong union tend to have a lower cash ratio and a higher debt ratio to enhance their bargaining power. We also observe a significantly negative adjusted inventory to sales ratio for struck firms. This result seems strange at first glance because that those firms with higher likelihood to be struck should build more stockpiles of inventories to gain bargaining advantage. However, as pointed out by Matsa (2009), only finished

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[3] Ideally, using the total employees measured at the beginning of the strike quarter to calculate the striker to employee ratio would be better. However COMPUSTAT only report yearly employment data.

goods can be used to serve customer during strike. Therefore, I decompose inventories into raw materials, work in process, and the finished goods. It turns out that struck firms do have a significantly higher adjusted level of finished goods. While examining the changes of these variables, we do not find any significant changes on debt ratio and cash ratio form year -2 to year -1 in terms of industry adjusted changes. Lastly, we observe a significant decrease of inventory as well as finished goods to sales ratio prior to strike. This can be a result of that struck firm experience an increase in sales before strike. The above patterns of firm characteristics prior to strike remain unchanged when quarterly data is used in the analysis, which is shown in panel D.

3. How do strikes affect operating performance?

3.1 Theory and methodology

A strike can have a negative impact on firm's operating performance in both short-run and long-run. The lost of production and sales during a strike obviously will cause a decrease in operating income in the short run. The long-run cost may come from that customers find other substitute and do not come back after the settlement as discussed by Schmidt and Berri (2004). Customer switching may also result from the low quality product made by replacement workers during the strike. Krueger and Mas (2004) provide a case study for the relationship between replacement worker and the high product failure rate. The lost of future business may lead to a long-run decrease in operating income.

A strike can also have positive effect on operating performance through a settlement with more favorable terms for the struck firm. Firms often claim that they can not meet union's demand in the beginning because they need to remain competitive in their industry. A strike can be thought as an information learning

mechanism. In negotiations during a strike, union members gradually learn about the fundamental of struck firms and may finally give wage or benefit concessions to some extent. The lower wage or lower wage increase will lead to a higher post-strike operating income. It seems that union wage concessions are a common feature in the settlement during 1980 to 1986 (Henderson, 1986). Becker (1987) estimates 8-10% increase in shareholder value for firms obtained a concessionary contract. Kramer and Vasconcellos (1996) also documented a significantly positive CAR around settlement in their strike samples during 1982 to 1990.

I use ROA as the main operating performance measure. The unadjusted ROA is defined as operating income before depreciation divided by the average total assets at the beginning and end of the fiscal quarter. Since both the short run strike cost－losing production and delivery, and the potential long run cost－ losing customers, will lead to a decrease in gross profit (net sales minus cost of goods sold) as well as operating income before depreciation, which will further lead to a decrease in ROA. In the same manner, if struck firms ultimately gain a wage concession, it will cause a decrease in cost of good sold, holding net sales constant. As a result, a lower labor cost will lead to a higher gross profit and ROA.

Since the change of operating performance is predictable ex ante, Barber and Lyon (1996) and Lie (2001) suggest using adjusted ROA to capture the abnormal operating performance. The adjusted ROA is the unadjusted ROA minus the unadjusted ROA of matching firms. One major advantage of the matching firm approach is that I do not need to specify a functional form for the relationship between the performance and matching characteristics. This relationship can be very complex and the use of linear model may be inappropriate. (Fama and French, 2000)

The way I generate matching firms closely follows Lie (2005). Given a stuck sample firm, I first identify all firms in the sample pre-strike quarter (quarter -1) with

all the following characteristics:

(1) Those with the same two digit SIC as the sample firm,

(2) Those with quarterly ROA within $\pm20\%$ or ±0.01 of the sample firm,

(3) Those with yearly ROA ending at pre-strike quarter within $\pm20\%$ or ±0.01 of the sample firm,

(4) Those with M/B ratio within $\pm20\%$ or ±0.01 of the sample firm.

Criterion (1) is set to control for industry effect. Criteria (2) to (4) is applied because pre-event ROA (M/B) is negatively (positively) related to future change in ROA. Without controlling these factors may lead to a biased test statistics.

If no firms meet all of these criteria, I relax criterion (1) to a one digit SIC. If there are still no firm meet these criteria, I disregard criterion (1). For those firms satisfying all the above criteria or their alternatives, I exclude those who suffer strike themselves in the next 8 quarters (quarter 0 to quarter 7). Among the remaining firms, I choose the firm with the smallest sum of absolute difference to be the matching sample. The sum of absolute difference is defined as:

|Pre-strike quarter ROA, Sample firm −Pre-strike quarter ROA, Firm i|

+ |Yearly ROA end at the per-strike quarter, Sample firm

- Yearly ROA end at the per-strike quarter, Firm i|

As a robust test, I also report the industry adjusted ROA in the following analysis, which is the unadjusted ROA minus the ROA of industry and size matching firm. The industry and size matching firms are firms with the same two-digit SIC code and have book value of assets closet to that of struck firms.

3.2 Whole sample analysis

Table 4 presents both the unadjusted and adjusted operating performance of the

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whole sample. We first examine the un-adjusted ROA. There is a significant and substantial drop of ROA in the strike quarter. For example, the mean change in ROA from quarter -1 to quarter 0 is -0.0031, which is amount to a percent change of -0.0031/0.033=-9.4%. However, the operating performance quickly bounces back to the pre-strike level in quarter +1. As a result, the performance change from quarter -1 to quarter +1 is not significant. Moreover, starting from quarter +2, the struck firm exhibit superior performance than the pre-strike level. The superior post strike performance is significant and lasts to quarter +7. The median result, although with less statistical significance, is qualitatively similar. These results suggest that the cost of strike mostly occurs in the strike quarter. If there is any long-run cost, it seems to be dominated by the gain in the new contract with a lower labor cost. The industry adjusted ROA exhibits a similar pattern. Struck firms have a lower ROA than their industry and size matching firms in quarter -1, and perform even worse in the strike quarter. We also observe a quickly recovery in quarter +1 and a superior operating performance in quarter +2 and +3.

The result above is somewhat skeptical in the sense that the ROA may be predictable prior to strikes. Also, the superior industry adjusted ROA in the post strike quarter can be a result of the mean reverting property of ROA. In the following, we turn to discuss the result of adjust operating performance, which has control for the predictable part of ROA. It turns out that the pattern of adjusted operating performance is very similar to the unadjusted one. By design, the adjusted ROA in quarter -1 is very close to zero. There is a deterioration of performance in the strike quarter and followed by a recovery in quarter +1. The mean result suggests that struck firm perform better than their matching firm in quarter +3 and quarter +5; while the median result suggest the post-strike performance of struck firm is comparable to their matching firm's. I also report the yearly changes in operating performance. Note that

the year 0 is defined as four quarters starting with quarter 0. The mean and median result both suggest that there no significant changes in ROA from year -1 to year 0 or to year +1.

3.3 Subsample analysis

One may argue that the insignificant strike effect is a result of the inclusion of many small scale and short-lived strikes in the sample. In what follows, I analyze those strikes with large scale and long duration to see whether the whole sample result still holds. First I define the scaled worker idle days (in years) as the strike to employee ratio times the strike duration. Obviously, the more workers involving in the strike, and the longer lasting a strike, the higher is the scaled worker idle days. Table 5 presents the operating performance pattern for the sample with scaled worker idle days above the median. In terms of unadjusted and industry adjusted ROA, the mean declination in the strike quarter is more substantial than the whole sample result, which amount to a percent change of -0.0056/0.0337=16.6%. Moreover, note that the deterioration in operating lasts to quarter +1. It seems that the strikes in this subsample do have greater and prolonged negative impact to firm's performance. However, what followed by the deterioration is a stronger recovery. Except quarter +6, struck firms significantly out-perform their performance matching firms from quarter +2 to +7. The yearly result also shows that the struck firms significant outperform matching firms in year +1.

The finding of positive long-run operating performance of struck firms is consistent with Becker (1987) and Kramer and Vasconcellos (1996). The later find no significant decline in stock prices of struck firms for a sample from 1982 to 1990. In particular, there is a significantly positive CAR surrounding the settlement. Kramer and Vasconcellos argue that the cost of strike is partially offset by the benefit of wage

concession union gave in that period. It is the presence of wage concession which makes strike less harmful. Following this wage concession argument, the superior post strike operating performance for the struck firms in this subgroup can be explained as follows. On one hand, union will lower their demand as the strike lasting, as suggested by standard strike model. Therefore, the longer is a strike; the lower is the wage concession in the new contract. On the other hand, if there are any gains from union wage concessions, the effect will be greatest when most of employees are subject to the new contract. But the firm with the most employees subject to the new contract is exactly the firm struck by most of its employees. Taken together, the struck firm who suffer most in the short run tends to gain most in the long run. The evidence in the subsamples suggests that the gross strike effect could be positive if the wage concession effect is strong.

In sum, these evidences suggest that the negative impact of strike either vanishes quickly or is dominated by the wage concession effect, so that the long run effect of strikes becomes insignificant or positive. It also implies that the some struck firms in our sample do gain competitive advantages via union concession, as what stuck company's managers usually claimed in the press. We can think that taking a strike is just like taking an investing project. The initial investment cost is the strike cost, and the investment will generate cash flow in terms of lower labor cost in the future. Naturally, one may ask what kind of firms tend to have a positive NPV strike project. In the next section, I will discuss how corporate policies, as well as other industrial and institutional factors can affect the net effect of strikes.

4. How do corporate strategies affect the post strike operating performance?

There are two motivations for the investigation of cross-sectional difference of strike cost and gain. First, as mentioned above, I can discuss the roles corporate

strategy and other institutional and industrial factors played on the strike impact. Second, the cross-sectional implications are generated based on the hypothesis that strike will affect operating performance. If these implications are supported empirically, I can be more confident to argue that the operating performance pattern observed is induced by strike, rather than sample selection bias.

4.1 Corporate strategies

Four types of corporate strategies are considered in this paper. They are the low cash holding strategy, the high leverage strategy, the diversification strategy, and finally the inventory strategy.

The low cash holding strategy, which is proposed by Klasa, Maxwell and Ortiz-Molina (2009), states that firms can hold less cash to shelter corporate income and gain bargaining advantages against union. Empirically, they document a negative relationship between corporate cash holdings and the industrial unionization rate. Also, they find increases in cash ratio will raise the probability of a strike. Here, I want to test whether a lower cash holding can also enhance firms' bargaining power during a strike. If this is true, then firms with lower cash holding measures should be associated with better post-strike operating performance. Since both a lower cash holding level or a negative changes in cash holding before strike could provide bargaining power for struck firms, I consider the following measures regarding cash holdings: the cash to total assets ratio in the fiscal quarter prior to the strikes, the change of cash ratio form quarter -5 to quarter -1, and the change of cash ratio form quarter -2 to quarter -1. I also consider the industry adjusted value of these measures. The excess cash ratio in Dittmar and Mahrt-Smith (2007) is also considered as a robust test. Specifically, excess cash ratio is the log of cash ratio minus fitted cash ratio. The fitted cash ratio is from the regression of the log of cash ratio on log of

book value of asset, free cash flow to book asset, working capital to book asset, market to book ratio, and industry and year dummies.

The high leverage strategy is discussed by Matsa (2009). Matsa argues that a high level of financial liquidity will encourage union to demand more wage, just like a high level of free cash flow will induce manager to investment in negative NPV project. Therefore, firms can strategically hold more debt to reduce liquidity and improve their bargaining position with union. Matsa confirms his prediction by showing a negative relationship between firms' debt ratio and union member coverage rate. If a high debt ratio can also lead to a favorable settlement, we shall observe a higher post-strike operating performance for struck firms with higher debt ratio measure. Again, both higher leverage ratio and increase of leverage ratio could provide bargaining power for struck firms, so that I use the debt ratio in the fiscal quarter prior to the strikes, the change of debt ratio form quarter -5 to quarter -1, and the change of debt ratio form quarter -2 to quarter -1 as well as the industry adjusted value of the above measures in the regression settings. Debt ratio is defined as the debt in current liability plus long-term debt divided by total book value of assets.

Although we are not sure whether the motivation of corporate diversification strategy is to gain bargaining advantage against union, some evidences do suggest diversification firms have at a superior bargaining position with union. For example, Rosett (1990) finds that union wage concession can explain up to five percents of takeover premiums acquired by shareholder. Rose (1989) shows that an increase in firm's diversification level significantly reduces the size of union wage in settlement. Moreover, Rose (1991) indicates that the higher the diversification level, the lower is the settlement wage. The story behind these findings is that conglomerate firms can gain bargaining advantage by using their deep-pocket to cross subsidizing strike cost. This argument is parallel to that conglomerate can cross subsidizing price war in the

predatory pricing. If diversification firms are more likely to win a low labor cost settlement, the improvement in post-strike earning performance should be more pronounced in diversification firms. In the regression settings, I first use a dummy variable to stand for diversification firms, which is set to one for firms reporting more than one segment in the COMPUSTAT segment file. The fraction of diversification firms to total sample is 65.9%. As point out by Kaufman and Hotchkiss (2006), a firm who produce unrelated product should have better bargaining power than a firm whose plant will use other plants' output in production. Therefore, I also use an entropy measure proposed by Palepu (1985) to proxy for degree of diversification. The entropy measure is a continuous variable and it can further decompose to the degree of related and unrelated diversifications, which are also included in the regression settings. As a robust test, the two-digit and four-digit SIC sales based herfindahl diversification measures are also used in the regression settings.

The last strategy will be discussed is the inventory strategy. Firms can use their inventories to do business during the strike. Therefore, for firms with the ability to build up inventories of finished goods prior to strike, such as manufacturing firms, should enjoy more bargaining power against union. Empirical evidences also support this point of view. De Fusco and Fuess (1991) study the airline strike effect on industry rivals. They find rival airlines enjoy a significantly positive CAR, indicating that the customers of struck airlines switch to non-struck rivals. However, Kramer and Vasconcellos (1996) using manufacturing firms to study the same issue and find no such rival effect. They attribute this finding to the ability to stockpile inventories so that struck firm can still serve their customer during strike. If stockpiling inventory can make strike less harmful and enhance firms' bargaining power, then the post-strike operating performance should be positive related to inventory measures. In the regression setting, I use inventory to sales ratio in the fiscal quarter end prior to

the strikes, the change of inventory ratio form quarter -5 to quarter -1, and the change of inventory ratio form quarter -2 to quarter -1 as well as the industry adjusted value of the above measures to be the regressors. The shortcoming of using quarterly data is that it only contains information about total inventories. Apparently, as point out by Matsa (2009), only finished goods in inventory can provide bargaining power against union. Therefore, I also include finished goods to sales ratio in the fiscal year prior to the strikes and the change of finished goods ratio form year -2 to year -1 in the regression analysis.

4.2 Other institutional and industrial factors

There are some institutional and industrial factors which can also affect the relative bargaining power between employers and unions during wage negotiations as well as the post-strike operating performance. Here I consider the unemployment rate and the enforcement of right to work law in the strike state, the struck firms' market share and the industry Herfindahl index of struck firms. The unemployment rate is related to the cost of strike for workers. A higher unemployment rate means it is more difficult to obtain a temporary job during a strike. Besides, strikers will be more likely to lose their jobs in the struck firm for good since it is easier to find replacement workers for struck firm under higher unemployment conditions. Moreover, higher unemployment rate tends to appear during recessions. Strikes during recession are less costly to firms since there are not many sales to lose, and managers can use strike as a way to work off excess inventories. In sum, firms tend to have more bargaining power when unemployment rate is high. I use the monthly unemployment rate of the state where the strike occurs to be the explanatory variable in the regression. For multi-state strikes, I take average of those unemployment rates associated with every states.

Another variable related to union bargaining power is the enforcement of right-to-work (RTW) laws. This law is allowed under provision of the Taft-Hartley ACT, which prohibits unions from making membership or payment of union dues or fees a condition of employment, either before or after an employee is hired. In other words, under the RTW laws, union can not require employees to join or financially support union. Apparently, the adoption of RTW law not only reduced the incentive for employee to join union, but also reduce union's financial resource. Therefore, the power of union as well as the threat of strike is diminished, as argued by Ellwood and Fine (1987). Also, evidences from Masta (2009) and Klasa, Maxwell and Ortiz-Molina (2009) both suggest that the enforcement of RTW law is associated with a lower union bargaining power. Currently, there are twenty-two states enforcing the RTW laws. I use a variable to stand for the status of RTW laws. This variable is set to one if the strike occurs at a state with RTW laws. For multi-state strikes, this variable is equal to the average number of states with RTW laws.

The relative bargaining power between struck firms and union may also depend on the market structural of the struck firms' industry. Karier (1985) finds that the negative impact of union on firms' profit is most pronounced in the high concentrated industry. It seems that the existence of excess profit as a result of imperfect competition will weaken firm's bargaining power. Besides, if there are only several major players in the market, the struck firms will be worried about that their customers will turn to main competitors during the strike. To address for the above effect, I use the sales based Herfindhal index to measure the degree of market concentration. Another variable related to the market structural is the struck firms' market shares. A higher market share can mean a higher monopoly profit which will be a bargaining disadvantage for struck firms. A higher market share can also mean that there are few substitutes in the market so that the chances that customer will

return after the settlement is high. Schmidt and Berri (2004) find no customer switching effect in the professional sport market of the U.S., since there are no close substitutes for customers who like to watch a MLB baseball games. Therefore, a higher market share can have both positive and negative effect on firms' bargaining power against union.

4.3 Model specification

I use the OLS regression to test the predictions regarding corporate policies and firms' bargaining power with union during strike. Consider the following regression specification:

$$\triangle ROA = b_0 + b_1 S + b_2 C + b_3 S \times C + b_4 Z + b_5 S \times Z + \varepsilon \qquad (1)$$

The dependent variable is the change of adjusted ROA of struck firms. The independent variables include the scaled worker idle days (S), the corporate policy variables (C), the interaction term of scaled worker idle days and the corporate policy variables, as well as all institutional and industrial control variables (Z) and their interaction terms with the scaled worker idle days. To see how the interaction terms work, we first note that the marginal effect of strike, or the scaled worker idle days, on the change of operating performance is $b_1 + b_3 C$. This marginal effect could be either negative or positive (in case the gain from settlement outweighs strike cost). A positive b_3 means that an increasing in C will lead to a less negative (more positive) marginal effect of strike on the change of ROA. In other words, an increasing in the corporate strategy variable C enhances firms' bargaining power with union. Similarly, if an increase of an industrial or institutional factor Z will lead to a stronger bargaining position for struck firm, the coefficient b_5 should be positive. We also note that in this

specification, C (Z) is allowed to have both direct and indirect effect on the dependent variable $\triangle ROA$. The marginal effect of C (Z) on $\triangle ROA$ is $b_2 + b_3 S$ ($b_4 + b_5 S$). The indirect effect b_3 (b_5), which is interpreted as the enhanced bargaining power provided by C (Z), will affect the dependent variable through the occurrence of strike. The coefficient b_2 (b_4) measures the direct effect of C (Z) on $\triangle ROA$, had the strike not occur (S=0).

4.4 Empirical results

In the following regression analysis, three measures of post-strike operating performance changes are used to be the dependent variable. The first one is the change in performance adjusted ROA from year -1 to year +1, which is ROA_{year+1}-ROA_{year-1}. Remember that year +1 is defined as the fourth to the seventh post-strike quarter, and year -1 is from quarter -4 to -1. Because that most strikes settle within one year, this measure mainly captures the long-run effect of strike and settlement. The second measure is the changes in performance adjusted ROA from year -1 to year +1, which is $ROA_{year\,0}$- ROA_{year-1}. Year 0 is from strike quarter to quarter +3. Since year 0 contains the strike period, this measure captures long-run as well as short-run effect of strike. A third measure of operating performance is the change in performance adjusted ROA from year -1 to post strike years. The post strike years ROA is the annualized ROA from quarter 0 to quarter +7. This measure captures all strike and settlement effect occurred within two years since the beginning of strike. The regression results of these there measures are presented in the panel A, panel B and panel C respectively in Table 6 to Table 10. Since most results of these measures are qualitatively similar, we mainly focus on the first measure in the following discussion.

Table 6 presents the regression result of post-strike operating performance

changes on measures of struck firms' cash ratio. The results form model 1 to model 4 in panel A suggest that neither the pre-strike quarter cash ratio nor the yearly change of pre-strike cash ratio (quarter -5 to quarter -1) have impact on firms' bargaining position, since the coefficients of their interaction terms with the scaled worker idle days are not significant. However, in model 5 and model 6, the coefficient of the quarterly change in pre-strike cash ratio (quarter -2 to -1) interaction terms are negatively significant at 1% level, which suggests that a decrease in cash holdings in the pre-strike quarter can enhance firms' bargaining power with union during strike. In panel B, the interaction term of the yearly change of pre-strike cash ratio is negatively significant. In panel D, we find that an increase in the level of excess cash ratio by Dittmar and Mahrt-Smith (2007) will significant reduced the struck firm's bargaining power. All of the results suggest a higher cash holding or an increase in cash holding prior to strike will weaken firm's bargaining position, which are consistent with Klasa, Maxwell and Ortiz-Molina (2009).

Next, we examine the relationship between corporate debt ratio and the post-strike operating performance in Table 7. We observe that it is the interaction terms of quarterly changes in pre-strike debt ratio, not of the yearly change of pre-strike cash ratio or pre-strike quarter debt ratio, has impact on the change of ROA. The negative coefficient of interaction terms suggests an increase in debt ratios in the pre-strike quarter is associated with a significant drop in post-strike operating performance. The implication of this finding is that raising debt prior to strikes will weaken firms' bargaining power, which seems contradict to the notion that firms can use debt to temper union's wage demand (Matsa, 2009). But we should note that the concept of maintaining a higher debt ratio at all time and increasing debt ratio before strike is somewhat different. While maintaining a higher debt ratio at all time can enhancing firms' bargaining power as Matsa (2009) suggests, increasing debt ratio

before strike may weaken firms' bargaining power. The reason could be that firms who increase of debt prior to strikes will also increase the amount of interest they need to pay to debt holder during strike. Firms with higher interest burden during strike may be more easily to surrender to union's demand. Nevertheless, this interesting finding deserves further investigations.

The regression results of changes in operating performance on diversification variables are presented in Table 8. First note that in model 1, the coefficient of diversification dummy interacting with scaled worker idle days is positively significant, which suggest diversification firms enjoy bargaining advantage with union. This is consistent with Rose (1989, 1991). However, in model 2, we do not find the interaction term of entropy measure of diversification positively related to the post-strike operating performance. Further analysis in model 3 to model 6 reveals that the enhanced bargaining power comes from unrelated diversification, rather than related diversification. In model 4 the coefficient of unrelated diversification interaction terms are both positively significant. By contrast, the coefficient of related diversification interaction term is negatively significant in model 4. It turns out that corporate engaging in related diversification will lose bargaining power with union. The reason could be that in related diversification firms, an output in the strike segment can be the input of other segments. When one segment is being struck, other non-struck segments' production will also be affected if they have a supply-chain relationship with the struck segment. With this kind of contagion effect, instead of having the ability to cross-subsidize strike cost, firms engaging in related diversification in fact are particularly vulnerable to strike, as pointed out by Kaufman and Hotchkiss (2006). The significance of the interaction term of the two-digit herfindahl measure in model 6 and the insignificance of the interaction term of the four-digit herfindahl measure in model 5 also corroborate with the above prediction,

since the two-digit herfindahl measure mainly capture the extent of unrelated diversification.

The inventory effect on the post-strike operating performance is shown in Table 9 and Table 10. The results in Table 9 are somewhat mixing. On one hand, model 2 and model 3 suggest that, when interacting with the strike scale, a higher inventory level or an increasing in inventory prior to strike will lead to a negative change in post-strike ROA. On the other hand, model 6 shows a positive relationship between the interaction term of quarterly change in pre-strike inventory and the post-strike ROA. The mixed result can be attribute to that the total inventory is not a good proxy for firms' bargaining power, since only inventories classified as finished goods can be used to serve customer during strikes. Consistent with this notion, in Table 10, I find that firms who increase the finished goods to sales ratio prior to strike is associated with higher post-strike ROA (model 3 and model 4) in terms of the indirect effect through strike. Moreover, the negative sign of the coefficient of the adjust inventory interactions term suggests that stockpiling inventory before strikes is most effective for struck firms with the lowest industry adjusted level of inventory. The evidences in Table 10 confirm the idea that struck firms can gain bargaining advantage by building up inventories prior to strikes.

We now turn to examine how industrial and institutional factors will affect the bargaining power and post-strike operating performance. First, in 19 out of 27 regression settings from panel A in Table 6 to Table 10, the coefficients of right to work law interaction terms are significantly positive, suggesting that firms operating in states with RTW laws do enjoy some bargaining advantage. However, we also note that the impact of RTW law is not a strong one. The highest estimation of the coefficient of RTW interaction is 0.00009, which means the bargaining advantage provide by the RTW law will only lead to a 0.009% increasing the post-strike ROA

through the enhanced bargaining power. Second, we find that, in 7 settings from Table 6 to Table 10 the interaction term of unemployment rate is negatively related to the post-strike change of ROA, which is inconsistent with the prediction that a higher unemployment rate can enhance firms' bargaining power. When I add the yearly change of the unemployment rate in strike state and its interaction term in the explanatory variables, the result of negative coefficient of unemployment rate interaction term remains unchanged. One possible explanation is that the unemployment rate is a lag indicator of business cycle such that a high level of unemployment is likely to be followed by a decrease in unemployment rate, which will enhance union's bargaining power. This argument is corroborated by the finding that a higher unemployment rate is associated with a better post-strike operating performance. Thirdly, The coefficient of market share interaction term is positively significant in some regression settings, suggesting that firm's bargaining power is enhanced by the lower chances of customer switching provided by high market share. Lastly, we find the interaction term of industry concentration level measured by Herfindahl index is negatively related to post-strike ROA in most settings, which is consistent to the notion that union tends to have better bargaining power in concentrated industries.

4.5 Causality concern

It is possible that the observed operating performance pattern is not delivered by cost of strike and gain from concession. For example, when union expects that the firm will be more profitable in the coming years, they tend to raise wage demand. This will lead to a higher strike probability. If firms with higher expected profitability are more likely to be struck, then we will naturally observe a long run superior performance for the struck firms. In this case, the superior performance has nothing to

do with the wage concession. Therefore, I provide evidence from the change of cost of production in the post-strike period to address for the causality concerns. Table 11 presents the unadjusted and industry adjusted cost of good sold to sales ratio from quarter -4 to quarter +7. I examine this ratio because the reduction of labor cost will reflect in the reduction of cost of good, holding sales constant. Compared with the pre-strike level (quarter -1), the unadjusted cost of good sold to sales ratio increases in the strike quarter, which can be a result of using replacing worker or paying for overtime. However, we also notice a significantly drop in this ratio in quarter +3, +5 and +7. The result form industry adjusted ratio suggests that the cost of good sold to sales ratio of struck firm is 6.89% higher than industry peers, but we also observe a significantly decline in production cost especially after controlling for the seasonal effect (quarter +3 and quarter +7). If the price of struck firm's product and material do not vary too much during the post-strike period, these evidences together suggest that struck firm do enjoy low production cost via winning a lower labor cost contract, which corroborate the causality of strike on the operating performance.

4.6 Economic significance

Table 12 presents the change in ROA and corporate dollar value resulted from the change of bargaining power lead by one standard deviation increased in corporate policies variables based on the above regression results. For example, in panel A, one standard deviation increase in cash ratio from quarter -2 to quarter -1 will lead to a 1% decrease in performance adjusted ROA in year +1. When evaluated at the sample mean of book value asset, this is amount to a lost of 314 million dollars in corporate value. Overall, the impact on the change of bargaining power and ROA resulted form one standard change in corporate policies ranges form 0.23% to 2.73%. Since the struck firms in our sample tends to be large firms, the cost or gain associated with

bargaining power provided by corporate policies tends to be large in terms of dollar values.

5. Conclusion

I use quarterly data to examine firm's operating performance followed by labor strikes, using a sample which consists of 235 strikes in the United State from 1982 to 2006. Notwithstanding a substantial drop in ROA is found in the strike quarter, starting from the second post strike quarter, struck firms exhibit superior performance. The insignificant performance changes from pre-strike year to strike year suggest that the strike cost is mostly offset or dominated by the gain form union wage concession at the settlement. This result holds as well if I exclude strikes with small scale and short durations. In regression analysis, I find that firms who decreasing their cash holding or increasing inventories in terms of finished products prior to the strike tend to associate with higher post-strike ROA, in terms of the indirect through strike. By contrast, firms who increase their debt ratio prior to the strike tend to have worse post strike operating performance. It seems that a higher debt ratio will deteriorate firms' bargaining power given a strike happened. I also find only firms diversifying to unrelated industries can enjoy better post-strike performance through an enhanced bargaining power. On the contrary, firms diversifying to related industry seem to have week bargaining power against union and perform worse after the settlement. Additionally, I find that firms operate in states enforcing RTW laws or with lower unemployment rate, firms in lowly concentrate industry, and firms with higher market share tend to have bargaining advantage against union and therefore enjoy a better post-strike operating performance. Most of these finding are consistent with what documented in existing literatures regarding firms' bargaining power during strike.

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Table 1
Sample distribution by year

This table presents sample distribution by calendar years. The sample is obtained from the Bureau of Labor Statistics (BLS). Total number of strikes is the number of strikes involving more than 1000 workers beginning in the year. The sample size is smaller then total number of strikes because of the exclusion of strikes in public sector and private firms lacking necessary data in COMPUSTAT to calculate operating performance.

Year	Sample size	Fraction to total sample (%)	Total number of strikes	Fraction to total strikes in the year (%)
1982	17	7.23	96	17.71
1983	21	8.94	81	25.93
1984	0	0.00	62	0.00
1985	19	8.09	54	35.19
1986	17	7.23	69	24.64
1987	8	3.40	46	17.39
1988	6	2.55	40	15.00
1989	10	4.26	51	19.61
1990	4	1.70	44	9.09
1991	10	4.26	40	25.00
1992	4	1.70	35	11.43
1993	10	4.26	35	28.57
1994	17	7.23	45	37.78
1995	17	7.23	31	54.84
1996	12	5.11	37	32.43
1997	9	3.83	29	31.03
1998	12	5.11	34	35.29
1999	7	2.98	17	41.18
2000	8	3.40	39	20.51
2001	5	2.13	29	17.24
2002	6	2.55	19	31.58
2003	4	1.70	14	28.57
2004	4	1.70	17	23.53
2005	6	2.55	22	27.27
2006	2	0.85	20	10.00
Total	235	100.00	1006	23.36

Table 2
Sample distribution by industry

This table presents the sample distribution by the 2 digit SIC code.

Industry name	SIC code	N	Fraction (%)
Metal Mining	10	2	0.85
Oil And Gas Extraction	13	1	0.43
Mining And Quarrying Of Nonmetallic Minerals, Except Fuels	14	1	0.43
Food And Kindred Products	20	12	5.11
Textile Mill Products	22	1	0.43
Apparel And Other Finished Products Made From Fabrics And Similar Materials	23	1	0.43
Lumber And Wood Products, Except Furniture	24	5	2.13
Paper And Allied Products	26	7	2.98
Chemicals And Allied Products	28	4	1.70
Petroleum Refining And Related Industries	29	1	0.43
Rubber And Miscellaneous Plastics Products	30	5	2.13
Stone, Clay, Glass, And Concrete Products	32	2	0.85
Primary Metal Industries	33	14	5.96
Fabricated Metal Products, Except Machinery And Transportation Equipment	34	2	0.85
Industrial And Commercial Machinery And Computer Equipment	35	28	11.91
Electronic And Other Electrical Equipment And Components, Except Computer Equipment	36	7	2.98
Transportation Equipment	37	78	33.19
Measuring, Analyzing, And Controlling Instruments; Photographic, Medical And Optical Goods; Watches And Clocks	38	3	1.28
Railroad Transportation	40	3	1.28
Motor Freight Transportation And Warehousing	42	4	1.70
Transportation By Air	45	9	3.83
Communications	48	15	6.38
Electric, Gas, And Sanitary Services	49	14	5.96
Wholesale Trade-non-durable Goods	51	2	0.85
Food Stores	54	11	4.68
Business Services	73	1	0.43
Automotive Repair, Services, And Parking	75	1	0.43
Health Services	80	1	0.43
Total		235	100.00

Table 3
Summary statistics

This table presents summary statistics about the strike and firm characteristics. The number of strikers is the total number of workers involving in the strike reported by BLS. The striker to employees ratio is the number of strikers divided by the number of employees at the beginning of the strike year. The duration is the number of days a strike last (in year). Cash ratio is cash and cash equivalents divided by book value of assets. Debt ratio is long-term debt plus debt in current liabilities divided by book value of assets. Inventory is total inventory to sales ratios, which can be further decomposed to raw material, work in process and finished goods to sales ratios. Industry adjusted values are unadjusted value minus industry median in four-digit SIC codes. Year (quarter) -1 is defined as the fiscal year (quarter) end prior to strikes. *, ** and *** present 1%, 5% and 10% significant level for two-tail *t*-test, respectively.

Panel A: Strike characteristics

	N	Mean	Mininum	25th percentile	Median	75th percentile	Maximum
Number of strikers	234	12,008.12	1,000	1,400	2,950	6,700	700,000
Striker to employees ratio	223	0.180	0.002	0.026	0.078	0.273	0.934
Duration (in years)	227	0.144	0.003	0.019	0.058	0.129	2.644

Panel B: Sample median of Financial characteristics prior to strike year

	Cash ratio	Debt ratio	Inventory			
			Total	Raw material	Work in process	Finished goods
Year -1	0.0294 ***	0.2986 ***	0.0971 ***	0.0346 ***	0.0382 ***	0.0438 ***
Year -2 to -1	-0.0008	-0.0026 *	-0.0027 ***	-0.0013 **	-0.0001	0.0000
Year -1 to 0	0.0007 **	-0.0033	-0.0007	-0.0010 *	0.0000	0.0010

Panel C: Sample median of industry adjusted financial characteristics prior to strike year

	Cash ratio	Debt ratio	Inventory			
			Total	Raw material	Work in process	Finished goods
year -1	-0.0094 **	0.0170 **	-0.0039 **	-0.0053	0.0130 ***	0.0061 ***
year -2 to -1	0.0013	-0.0052	-0.0026 ***	-0.0037 ***	-0.0006	-0.0016 ***
year -1 to 0	0.0016	-0.0040	-0.0030 **	-0.0024 ***	-0.0004	-0.0008

Panel D: Sample median of financial characteristics prior to strike quarter

	Unadjusted median			Industry adjusted median		
	cash ratio	debt ratio	inventory	cash ratio	debt ratio	inventory
quarter -1	0.0302 ***	0.2929 ***	0.3920 ***	-0.0056	0.0080 *	-0.0297 **
quarter -5 to1	-0.0004	-0.0027	-0.0055 *	0.0014	-0.0066	-0.0025
quarter -3 to-2	0.0000	-0.0020 *	-0.0095 **	0.0006	-0.0020	0.0024
quarter -2 to-1	0.0000	0.0009 *	-0.0017	0.0010	0.0007	-0.0019
quarter -1 to 0	0.0001	-0.0026 *	0.0025	0.0000	0.0018	0.0006

Table 4
Operating performance

This table presents level and changes of operating performance of sample firms. Operating performance is measured by ROA, which is operating income before depreciation scaled by average book value of asset. Quarter 0 is the fiscal quarter when strike begins. Year 0 is defined as 4 quarters starting with quarter 0. Industry adjusted ROA is the paired difference between the ROA of sample firms and the ROA of their respective industry and size matching firms. Performance adjustment ROA is the paired difference between the ROA of sample firms and the ROA of their respective industry, performance, and M/B matching firms. The means have been winsorized at top and bottom 1%.*, ** and *** denote 1%, 5% and 10% significant level for two-tail *t*-test, respectively.

Quarter /Year	N	Unadjusted		Industry adjusted		Performance adjusted	
		Mean	Median	Mean	Median	Mean	Median
Panel A: Quarterly Levels of operating performance							
-4	226	0.0349 ***	0.0323 ***	-0.0008	-0.0020	0.0000	-0.0002
-3	227	0.0336 ***	0.0317 ***	-0.0016	-0.0020	-0.0003	-0.0005
-2	231	0.0335 ***	0.0304 ***	-0.0006	-0.0014	0.0011	0.0003
-1	235	0.0330 ***	0.0328 ***	-0.0032 **	-0.0014	0.0002	0.0000
0	235	0.0299 ***	0.0309 ***	-0.0053 ***	-0.0027 ***	-0.0030 **	-0.0018 ***
1	233	0.0333 ***	0.0330 ***	-0.0018	-0.0001	0.0017	0.0000
2	233	0.0359 ***	0.0354 ***	0.0031 *	0.0012 *	0.0026	0.0000
3	232	0.0362 ***	0.0351 ***	0.0026 *	0.0013	0.0037 **	0.0009
4	228	0.0352 ***	0.0346 ***	0.0015	0.0002	0.0021	0.0000
5	226	0.0367 ***	0.0346 ***	0.0022	-0.0006	0.0057 ***	-0.0001
6	222	0.0372 ***	0.0340 ***	0.0019	-0.0014	0.0025	0.0002
7	216	0.0361 ***	0.0339 ***	-0.0016	-0.0014	-0.0007	-0.0002
Panel B: Quarterly changes of operating performance							
-1 to 0	235	-0.0031 ***	-0.0004 **	-0.002	-0.0014 **	-0.0032 ***	-0.0025 ***
-1 to 1	233	0.0002	0.0001	0.0015	-0.0005	0.0016	-0.0004
-1 to 2	233	0.0032 **	0.0002	0.0064 ***	0.0017 ***	0.0025	-0.0003
-1 to 3	232	0.0033 ***	0.0012 ***	0.0054 ***	0.0016 ***	0.0035 **	0.0008 *
-1 to 4	228	0.0022 *	0.0006	0.0048 ***	0.0006 *	0.0019	0.0000
-1 to 5	226	0.0037 ***	-0.0003	0.0055 ***	0.0001	0.0056 ***	-0.0005
-1 to 6	222	0.0040 ***	0.0004	0.0052 ***	0.0005 **	0.0024	-0.0003
-1 to 7	216	0.0025 **	0.0000	0.0019	0.0014	-0.0009	-0.0013
Panel C: Yearly Levels of operating performance							
-1	224	0.1354 ***	0.1306 ***	-0.0048	-0.0039	0.0014 **	0.0005 *
0	232	0.1356 ***	0.1366 ***	-0.0017	-0.0043	0.0066	0.0012
1	215	0.1458 ***	0.1383 ***	0.0017	-0.0042	0.0076	-0.0013
Panel D: Yearly changes of operating performance							
-1 to 0	221	-0.0010	0.0013	0.0029	0.0001	0.0015	-0.0020
-1 to 1	206	0.0051	0.0010	0.0025	-0.0014	0.0003	-0.0050

Table 5

Operating performance associate with large scale and long duration strike

This table presents level and changes of operating performance of struck firms with scaled worker idle days above sample median. Scaled worker idle days is strikers to employee ratio times strike duration. Operating performance is measured by ROA, which is operating income before depreciation scaled by average book value of asset. Quarter 0 is the fiscal quarter when strike begins. Year 0 is defined as 4 quarters starting with quarter 0. Industry adjusted ROA is the paired difference between the ROA of sample firms and the ROA of their respective industry and size matching firms. Performance adjustment ROA is the paired difference between the ROA of sample firms and the ROA of their respective industry, performance, and M/B matching firms. The means have been winsorized at top and bottom 1%. *, ** and *** denote 1%, 5% and 10% significant level for two-tail *t*-test, respectively.

Quarter /Year	N	Unadjusted		Industry adjusted		Performance adjusted	
		Mean	Median	Mean	Median	Mean	Median
Panel A: Quarterly Levels of operating performance							
-4	100	0.0379 ***	0.0336 ***	0.0007	-0.0009	0.0007	-0.0003
-3	101	0.0351 ***	0.0325 ***	-0.0003	-0.0005	-0.0021	-0.0016 ***
-2	102	0.0358 ***	0.0335 ***	0.0001	0.0000	0.0029	0.0017
-1	105	0.0337 ***	0.0356 ***	-0.0044 *	-0.0017	0.0008 **	0.0006 **
0	105	0.0280 ***	0.0307 ***	-0.0090 ***	-0.0054 ***	-0.0027	-0.0016
1	104	0.0317 ***	0.0329 ***	-0.0052 *	-0.0022	-0.0002	-0.0005
2	104	0.0378 ***	0.0380 ***	0.0029	0.0023	0.0042 *	0.0013 *
3	103	0.0379 ***	0.0380 ***	0.0019	0.0013	0.0069 ***	0.0026 **
4	100	0.0366 ***	0.0360 ***	0.0020	0.0026	0.0051 **	0.0030 **
5	99	0.0377 ***	0.0370 ***	0.0026	0.0000	0.0073 **	0.0007
6	96	0.0395 ***	0.0375 ***	0.0012	0.0011	0.0036	0.0020
7	92	0.0386 ***	0.0371 ***	-0.0032	0.0014	0.0046 *	0.0036 *
Panel B: Quarterly changes of operating performance							
-1 to 0	105	-0.0056 ***	-0.0042 ***	-0.0043 *	-0.0032 **	-0.0034	-0.0030
-1 to 1	104	-0.0023	-0.0014 **	-0.0008	-0.0018	-0.0008	-0.0021
-1 to 2	104	0.0043 *	-0.0008	0.0071 **	0.0018 **	0.0034	0.0003
-1 to 3	103	0.0038 **	0.0014 **	0.0057 **	0.0023 **	0.0061 **	0.0018 **
-1 to 4	100	0.0028	-0.0003	0.0066 **	0.0016 *	0.0043 *	0.0018
-1 to 5	99	0.0041 *	-0.0007	0.0077 ***	0.0029 **	0.0067 **	0.0002
-1 to 6	96	0.0051 **	0.0000	0.0056 **	0.0033 **	0.0028	0.0008
-1 to 7	92	0.0036 *	0.0003	0.0015	0.0027	0.0038	0.0012
Panel C: Yearly Levels of operating performance							
-1	98	0.1431 ***	0.1338 ***	-0.0011	0.0016	0.0008	0.0000
0	103	0.1347 ***	0.1353 ***	-0.0107	-0.0087	0.0088	0.0059
1	91	0.1560 ***	0.1508 ***	0.0024	0.0108	0.0210 **	0.0064 *
Panel D: Yearly changes of operating performance							
-1 to 0	96	-0.0060	0.0007	-0.0058	-0.0044	0.0045	0.0028
-1 to 1	86	0.0078	0.0048	0.0035	0.0078	0.0153 *	0.0044

Table 6

Regressions of operating performance change on cash ratio measures

This table reports OLS regressions of long run operating performance change on strike and firm characteristic variables. The dependent variable is the change of operating performance form year -1 to 1. Scaled worker idle days is strikers to employee ratio times strike duration. Cash ratio is cash and cash equivalent divided by total asset measured at the fiscal quarter end of quarter -1. Adjusted cash ratio is cash ratio minus the industry median at four-digit SIC level. Yearly change in (adjusted) cash ratio is cash ratio of quarter -1 minus (adjusted) cash ratio of quarter -5. Quarterly change in (adjusted) cash ratio is cash ratio of quarter -1 minus (adjusted) cash ratio of quarter -2. Excess cash ratio is the log of cash ratio minus fitted cash ratio. The fitted cash ratio is from the regression of the log of cash ratio on log of book value of asset, free cash flow to book asset, working capital to book asset, market to book ratio, and industry and year dummies. Right to work law is set to one for strikes in the state which enforces Right to work laws prior to the strikes. For multi-state strikes, this value is the average number of state with Right to work laws. Unemployment rate is the monthly unemployment rate in the strike state. For multi-state strikes, this value is the average unemployment rate of the strike states. Market share is the sales of struck firm divide by industry total sales at four-digit SIC level. Industry concentration is the sales based Herfindahl index at four-digit SIC level. Numbers in parentheses are t-statistics with White (1980) adjustment. *, ** and *** denote 1%, 5% and 10% significant level for two-tail t-test, respectively.

Panel A: ROA $_{year+1}$ − ROA $_{year-1}$ is used as the dependent variable

Model	1	2	3	4	5	6
Intercept	-0.0301	-0.0313	-0.0356	-0.0372	-0.03	-0.0341
	(-1.346)	(-1.32)	(-1.475)	(-1.45)	(-1.346)	(-1.477)
Scaled worker idle days	0.0027	0.0027	0.003	0.0036	0.0032	0.0041
	(1.88)*	(1.743)*	(1.91)*	(2.083)**	(2.743)***	(3.159)***
Cash ratio	-0.0536		-0.029		-0.0034	
	(-0.409)		(-0.225)		(-0.026)	
Scaled worker idle days ×	0.003		-0.0007		-0.0088	
Cash ratio	(0.385)		(-0.089)		(-1.128)	
Adj. cash ratio		-0.0599		-0.0553		-0.0587
		(-0.728)		(-0.673)		(-0.732)
Scaled worker idle days ×		-0.001		-0.0032		-0.0051
Adj. cash ratio		(-0.156)		(-0.477)		(-0.826)
Yearly change in cash ratio			-0.1442			
			(-0.809)			
Scaled worker idle days ×			-0.0055			
Yearly change in cash ratio			(-0.43)			
Adj. yearly change in cash ratio				0.0148		
				(0.071)		
Scaled worker idle days ×				-0.0135		
Adj. yearly change in cash ratio				(-1.159)		
Quarterly change in cash ratio					0.1591	
					(0.377)	
Scaled worker idle days ×					-0.0738	
Quarterly change in cash ratio					(-2.757)***	
Adj. quarterly change in cash ratio						0.2849
						(0.691)
Scaled worker idle days ×						-0.065
Adj. quarterly change in cash ratio						(-3.395)***
Right to work law	0.0156	0.0141	0.0184	0.0147	0.0105	0.0084
	(0.971)	(0.867)	(1.097)	(0.863)	(0.634)	(0.508)
Scaled worker idle days ×	-0.0011	-0.0008	-0.0016	-0.001	-0.0003	0.0007
Right to work law	(-0.712)	(-0.462)	(-0.843)	(-0.632)	(-0.27)	(0.543)
Unemployment rate	0.6592	0.6407	0.7317	0.7369	0.624	0.679
	(1.81)*	(1.862)*	(1.896)*	(1.959)*	(1.728)*	(2.034)**
Scaled worker idle days ×	-0.0353	-0.0317	-0.0391	-0.0461	-0.031	-0.0469
Unemployment rate	(-1.224)	(-1.152)	(-1.247)	(-1.508)	(-1.747)*	(-3.2)***
Market share	-0.0977	-0.1012	-0.0885	-0.0918	-0.11	-0.1206
	(-1.821)*	(-1.812)*	(-1.577)	(-1.587)	(-2.021)**	(-2.137)**
Scaled worker idle days ×	0.0042	0.0046	0.0031	0.0039	0.0075	0.0116
Market share	(1.073)	(1.073)	(0.637)	(0.956)	(2.308)**	(2.947)***
Industry concentration	0.0639	0.0675	0.0534	0.0581	0.0819	0.0909
	(1.013)	(1.038)	(0.812)	(0.867)	(1.261)	(1.373)
Scaled worker idle days ×	-0.0053	-0.0061	-0.004	-0.0059	-0.0105	-0.0139
Industry concentration	(-1.048)	(-1.038)	(-0.663)	(-1.145)	(-2.352)**	(-2.7)***
R square	0.085	0.086	0.092	0.097	0.124	0.133
Adj_R square	0.024	0.026	0.02	0.025	0.054	0.064
N	178	178	177	177	177	177

Panel B: ROA $_{year\,0}$ $-$ ROA $_{year-1}$ is used as the dependent variable

Model	1	2	3	4	5	6
Intercept	0.008	0.0074	0.0018	0.0011	0.0053	0.0044
	(0.52)	(0.501)	(0.106)	(0.073)	(0.348)	(0.3)
Scaled worker idle days	0.0016	0.0015	0.0027	0.0026	0.0027	0.0029
	(1.516)	(1.51)	(2.615)***	(2.753)***	(3.36)***	(3.983)***
Cash ratio	-0.0182		-0.01		-0.011	
	(-0.204)		(-0.112)		(-0.128)	
Scaled worker idle days ×	0.0036		0.0012		0.0055	
Cash ratio	(0.601)		(0.317)		(1.455)	
Adj. cash ratio		-0.0582		-0.0635		-0.0698
		(-0.884)		(-0.983)		(-1.116)
Scaled worker idle days ×		0.0065		0.0069		0.0108
Adj. cash ratio		(0.839)		(1.193)		(2.124)**
Yearly change in cash ratio			0.0869			
			(0.602)			
Scaled worker idle days ×			-0.0213			
Yearly change in cash ratio			(-3.151)***			
Adj. yearly change in cash ratio				0.102		
				(0.711)		
Scaled worker idle days ×				-0.0186		
Adj. yearly change in cash ratio				(-2.566)**		
Quarterly change in cash ratio					0.0048	
					(0.023)	
Scaled worker idle days ×					-0.0477	
Quarterly change in cash ratio					(-4.259)***	
Adj. quarterly change in cash ratio						-0.0211
						(-0.109)
Scaled worker idle days ×						-0.0453
Adj. quarterly change in cash ratio						(-4.009)***
Right to work law	0.0174	0.0171	0.02	0.0175	0.0161	0.0149
	(1.28)	(1.277)	(1.487)	(1.313)	(1.191)	(1.119)
Scaled worker idle days ×	-0.0007	-0.0009	-0.002	-0.0014	-0.001	-0.0007
Right to work law	(-0.5)	(-0.66)	(-1.837)*	(-1.234)	(-1.183)	(-0.722)
Unemployment rate	0.0902	0.101	0.1858	0.1997	0.12	0.1404
	(0.441)	(0.497)	(0.864)	(0.928)	(0.609)	(0.714)
Scaled worker idle days ×	-0.0319	-0.0314	-0.0485	-0.05	-0.0412	-0.0468
Unemployment rate	(-1.712)*	(-1.698)*	(-2.617)***	(-2.795)***	(-3.572)***	(-4.296)***
Market share	-0.0349	-0.0391	-0.0219	-0.0304	-0.0429	-0.0534
	(-0.698)	(-0.796)	(-0.427)	(-0.602)	(-0.862)	(-1.089)
Scaled worker idle days ×	0.0033	0.0033	0.0008	0.0022	0.0055	0.0081
Market share	(1.088)	(1.132)	(0.327)	(0.897)	(2.254)**	(2.922)***
Industry concentration	0.0083	0.0096	-0.0059	0.0012	0.0195	0.0257
	(0.15)	(0.177)	(-0.105)	(0.022)	(0.354)	(0.472)
Scaled worker idle days ×	-0.0034	-0.0026	-0.0007	-0.0017	-0.0073	-0.0077
Industry concentration	(-0.884)	(-0.685)	(-0.233)	(-0.516)	(-2.175)**	(-2.072)**
R square	0.064	0.068	0.092	0.092	0.119	0.125
Adj_R square	0.008	0.012	0.026	0.027	0.055	0.061
N	195	195	194	194	194	194

Panel C: Annualized ROA of year 0 and year 1 － ROA $_{year-1}$ is used as the dependent variable

Model	1	2	3	4	5	6
Intercept	-0.0133	-0.0135	-0.0179	-0.019	-0.0134	-0.0157
	(-0.779)	(-0.777)	(-0.97)	(-1.011)	(-0.787)	(-0.915)
Scaled worker idle days	0.0026	0.0024	0.003	0.0034	0.003	0.0035
	(2.357)**	(2.063)**	(2.482)**	(2.525)**	(3.175)***	(3.661)***
Cash ratio	-0.0486		-0.0302		-0.0054	
	(-0.512)		(-0.322)		(-0.056)	
Scaled worker idle days ×	0.0084		0.0043		-0.0014	
Cash ratio	(1.407)		(0.62)		(-0.237)	
Adj. cash ratio		-0.0676		-0.0652		-0.0663
		(-1.079)		(-1.049)		(-1.062)
Scaled worker idle days ×		0.007		0.0049		0.0037
Adj. cash ratio		(1.222)		(0.829)		(0.756)
Yearly change in cash ratio			-0.042			
			(-0.303)			
Scaled worker idle days ×			-0.0095			
Yearly change in cash ratio			(-0.955)			
Adj. yearly change in cash ratio				0.0476		
				(0.306)		
Scaled worker idle days ×				-0.0141		
Adj. yearly change in cash ratio				(-1.644)		
Quarterly change in cash ratio					0.0991	
					(0.322)	
Scaled worker idle days ×					-0.0606	
Quarterly change in cash ratio					(-3.15)***	
Adj. quarterly change in cash ratio						0.1442
						(0.497)
Scaled worker idle days ×						-0.0528
Adj. quarterly change in cash ratio						(-3.966)***
Right to work law	0.0185	0.0178	0.0204	0.0179	0.0141	0.0128
	(1.39)	(1.337)	(1.488)	(1.31)	(1.034)	(0.953)
Scaled worker idle days ×	-0.0013	-0.0014	-0.0019	-0.0016	-0.0007	-0.0001
Right to work law	(-1.316)	(-1.124)	(-1.55)	(-1.41)	(-0.842)	(-0.131)
Unemployment rate	0.4095	0.3874	0.4717	0.4756	0.3815	0.4172
	(1.539)	(1.52)	(1.671)*	(1.71)*	(1.46)	(1.688)*
Scaled worker idle days ×	-0.0409	-0.035	-0.0463	-0.0495	-0.0373	-0.0474
Unemployment rate	(-1.784)*	(-1.568)	(-1.926)*	(-2.06)**	(-2.703)***	(-4.029)***
Market share	-0.0714	-0.077	-0.0621	-0.0682	-0.081	-0.0925
	(-1.533)	(-1.604)	(-1.28)	(-1.381)	(-1.712)*	(-1.902)*
Scaled worker idle days ×	0.0039	0.0039	0.0025	0.0032	0.0066	0.0097
Market share	(1.523)	(1.33)	(0.8)	(1.207)	(3.03)***	(3.662)***
Industry concentration	0.0393	0.0431	0.0289	0.0347	0.0535	0.0619
	(0.722)	(0.774)	(0.513)	(0.608)	(0.955)	(1.093)
Scaled worker idle days ×	-0.0047	-0.004	-0.0031	-0.0039	-0.009	-0.0104
Industry concentration	(-1.402)	(-0.99)	(-0.787)	(-1.099)	(-2.857)***	(-2.852)***
R square	0.095	0.094	0.103	0.108	0.138	0.143
Adj_R square	0.035	0.034	0.032	0.037	0.069	0.075
N	178	178	177	177	177	177
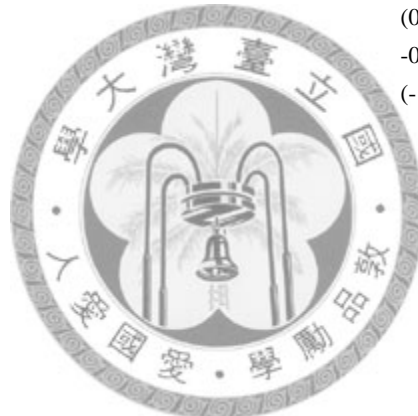
Panel D: Excess Cash

Model	1	2	3
Intercept	0.0177	0.0023	0.0142
	(0.403)	(0.047)	(0.297)
Scaled worker idle days	-0.001	-0.0001	0.0012
	(-0.274)	(-0.037)	(0.259)
Excess cash ratio	0.0116	0.0073	0.0094
	(1.507)	(0.859)	(1.099)
Scaled worker idle days ×	-0.0017	-0.0015	-0.0019
Excess cash ratio	(-2.15)**	(-1.949)*	(-1.877)*
Yearly change in cash ratio		0.0111	
		(1.363)	
Scaled worker idle days ×		-0.0013	
Yearly change in cash ratio		(-1.591)	
Quarterly change in cash ratio			0.0106
			(0.836)
Scaled worker idle days ×			0.0008
Quarterly change in cash ratio			(0.244)
Right to work law	-0.014	-0.0253	-0.0127
	(-0.556)	(-0.957)	(-0.483)
Scaled worker idle days ×	0.0073	0.0086	0.0069
Right to work law	(1.651)	(1.973)*	(1.4)
Unemployment rate	0.0734	0.3055	0.1052
	(0.123)	(0.465)	(0.157)
Scaled worker idle days ×	0.0373	0.0204	0.0195
Unemployment rate	(0.693)	(0.378)	(0.336)
Market share	-0.1494	-0.1905	-0.1765
	(-1.758)*	(-1.927)*	(-1.811)*
Scaled worker idle days ×	0.023	0.0304	0.0293
Market share	(1.687)*	(2.082)**	(1.658)
Industry concentration	0.1029	0.1625	0.1361
	(1.07)	(1.472)	(1.225)
Scaled worker idle days ×	-0.0317	-0.0405	-0.0408
Industry concentration	(-1.739)*	(-2.103)**	(-1.664)*
R square	0.155	0.177	0.168
Adj_R square	0.069	0.068	0.063
N	120	112	117
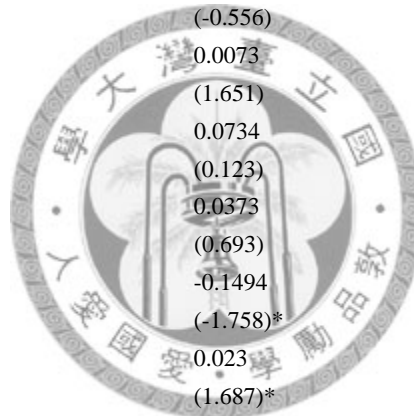
Table 7

Regressions of operating performance change on debt ratio measures

This table reports OLS regressions of long run operating performance change on strike and firm characteristic variables. The dependent variable is the change of operating performance form year -1 to 1. Scaled worker idle days is strikers to employee ratio times strike duration. Debt ratio is debt in current liability plus long-term debt divided by total asset measured at the fiscal quarter end of quarter -1. Adjusted debt ratio is debt ratio minus the industry median at four-digit SIC level. Yearly change in (adjusted) debt ratio is debt ratio of quarter -1 minus (adjusted) debt ratio of quarter -5. Quarterly change in (adjusted) debt ratio is debt ratio of quarter -1 minus (adjusted) debt ratio of quarter -2. Right to work law is set to one for strikes in the state which enforces Right to work laws prior to the strikes. For multi-state strikes, this value is the average number of strike state with Right to work laws. Unemployment rate is the monthly unemployment rate in the strike state. For multi-state strikes, this value is the average unemployment rate of the strike states. Market share is the sales of struck firm divide by industry total sales at four-digit SIC level. Industry concentration is the sales based Herfindahl index at four-digit SIC level. Numbers in parentheses are t-statistics with White (1980) adjustment. *, ** and *** denote 1%, 5% and 10% significant level for two-tail t-test, respectively.

Panel A: ROA $_{year+1}$ − ROA $_{year-1}$ is used as the dependent variable

Model	1	2	3	4	5	6
Intercept	-0.037	-0.0443	-0.0215	-0.0318	-0.0346	-0.0338
	(-0.939)	(-1.596)	(-0.538)	(-1.116)	(-0.859)	(-1.18)
Scaled worker idle days	0.0029	0.0028	0.0013	0.0018	0.0018	0.0009
	(1.146)	(1.936)*	(0.593)	(1.332)	(0.926)	(0.872)
Debt ratio	-0.02		-0.032		-0.0187	
	(-0.394)		(-0.617)		(-0.357)	
Scaled worker idle days ×	0		0.0007		-0.0002	
Debt ratio	(-0.009)		(0.148)		(-0.058)	
Adj. debt ratio		-0.0031		-0.0054		-0.0064
		(-0.078)		(-0.128)		(-0.148)
Scaled worker idle days ×		-0.0004		-0.0005		0.0028
Adj. debt ratio		(-0.08)		(-0.097)		(0.665)
Yearly change in debt ratio			0.0926			
			(1.743)*			
Scaled worker idle days ×			-0.0293			
Yearly change in debt ratio			(-1.281)			
Adj. yearly change in debt ratio				0.0402		
				(0.743)		
Scaled worker idle days ×				-0.0092		
Adj. yearly change in debt ratio				(-1.202)		
Quarterly change in debt ratio					0.108	
					(1.928)*	
Scaled worker idle days ×					-0.0934	
Quarterly change in debt ratio					(-3.132)***	
Adj. quarterly change in debt ratio						0.088
						(1.545)
Scaled worker idle days ×						-0.0722
Adj. quarterly change in debt ratio						(-4.061)***
Right to work law	0.0191	0.0187	0.0171	0.0166	0.0157	0.014
	(1.101)	(1.078)	(0.971)	(0.939)	(0.888)	(0.789)
Scaled worker idle days ×	-0.0013	-0.0013	-0.0007	-0.0011	0	-0.0007
Right to work law	(-0.543)	(-0.566)	(-0.305)	(-0.461)	(0.01)	(-0.405)
Unemployment rate	0.8234	0.8331	0.6931	0.6988	0.7486	0.633
	(2.132)**	(2.214)**	(1.727)*	(1.77)*	(1.893)*	(1.613)
Scaled worker idle days ×	-0.0373	-0.0371	-0.0216	-0.0249	-0.0201	0.0034
Unemployment rate	(-1.298)	(-1.302)	(-0.847)	(-0.898)	(-1.048)	(0.15)
Market share	-0.0993	-0.1007	-0.0785	-0.0898	-0.0958	-0.1126
	(-1.665)*	(-1.667)*	(-1.226)	(-1.338)	(-1.501)	(-1.745)*
Scaled worker idle days ×	0.0036	0.0037	0.0009	0.0031	0.0034	0.0063
Market share	(0.671)	(0.705)	(0.175)	(0.596)	(0.8)	(1.464)
Industry concentration	0.0612	0.0651	0.0332	0.0466	0.0601	0.0824
	(0.889)	(0.934)	(0.452)	(0.617)	(0.813)	(1.099)
Scaled worker idle days ×	-0.0044	-0.0045	-0.002	-0.0035	-0.0037	-0.0088
Industry concentration	(-0.685)	(-0.696)	(-0.343)	(-0.548)	(-0.791)	(-1.739)*
R square	0.103	0.101	0.11	0.101	0.136	0.151
Adj_R square	0.037	0.036	0.029	0.019	0.059	0.075
N	162	162	157	157	159	159

Panel B: ROA $_{year\ 0}$ − ROA $_{year-1}$ is used as the dependent variable

Model	1	2	3	4	5	6
Intercept	-0.0221	-0.0094	-0.0205	-0.0061	-0.021	-0.0044
	(-0.975)	(-0.571)	(-0.873)	(-0.356)	(-0.898)	(-0.266)
Scaled worker idle days	0.0025	0.0025	0.0027	0.0022	0.0021	0.0015
	(1.376)	(2.264)**	(1.278)	(1.824)*	(1.137)	(1.935)*
Debt ratio	0.0543		0.0549		0.0574	
	(1.303)		(1.191)		(1.28)	
Scaled worker idle days ×	-0.0015		-0.0018		-0.0015	
Debt ratio	(-0.469)		(-0.484)		(-0.429)	
Adj. debt ratio		0.0759		0.0811		0.0763
		(2.007)**		(1.834)*		(1.892)*
Scaled worker idle days ×		-0.0071		-0.007		-0.0063
Adj. debt ratio		(-1.647)		(-1.579)		(-1.429)
Yearly change in debt ratio			-0.0093			
			(-0.14)			
Scaled worker idle days ×			0.0059			
Yearly change in debt ratio			(0.398)			
Adj. yearly change in debt ratio				-0.0244		
				(-0.336)		
Scaled worker idle days ×				-0.0025		
Adj. yearly change in debt ratio				(-0.313)		
Quarterly change in debt ratio					-0.02	
					(-0.345)	
Scaled worker idle days ×					-0.0322	
Quarterly change in debt ratio					(-1.389)	
Adj. quarterly change in debt ratio						-0.0088
						(-0.184)
Scaled worker idle days ×						-0.035
Adj. quarterly change in debt ratio						(-2.34)**
Right to work law	0.022	0.0226	0.0217	0.0213	0.0201	0.0195
	(1.547)	(1.607)	(1.446)	(1.437)	(1.377)	(1.361)
Scaled worker idle days ×	-0.0022	-0.0015	-0.0023	-0.0015	-0.0018	-0.0012
Right to work law	(-1.471)	(-1.146)	(-1.504)	(-1.061)	(-1.158)	(-0.98)
Unemployment rate	0.2731	0.3015	0.2606	0.2627	0.2434	0.2159
	(1.179)	(1.325)	(1.071)	(1.098)	(1.032)	(0.936)
Scaled worker idle days ×	-0.0387	-0.0512	-0.0409	-0.0468	-0.0322	-0.0331
Unemployment rate	(-1.857)*	(-2.402)**	(-1.778)*	(-2.089)**	(-1.764)*	(-1.81)*
Market share	-0.0324	-0.0361	-0.0299	-0.0389	-0.0293	-0.04
	(-0.598)	(-0.667)	(-0.524)	(-0.679)	(-0.508)	(-0.697)
Scaled worker idle days ×	0.001	0.003	0.0014	0.0029	0.0008	0.0043
Market share	(0.305)	(0.9)	(0.356)	(0.86)	(0.252)	(1.372)
Industry concentration	0.0112	0.009	0.006	0.01	0.0111	0.0173
	(0.185)	(0.149)	(0.094)	(0.156)	(0.171)	(0.268)
Scaled worker idle days ×	-0.0008	-0.0008	-0.001	-0.0008	-0.0004	-0.0027
Industry concentration	(-0.199)	(-0.25)	(-0.229)	(-0.235)	(-0.104)	(-0.801)
R square	0.093	0.117	0.095	0.12	0.1	0.135
Adj_R square	0.033	0.058	0.02	0.047	0.027	0.065
N	178	178	172	172	175	175

Panel C: Annualized ROA of year 0 and year 1 − ROA $_{year-1}$ is used as the dependent variable

Model	1	2	3	4	5	6
Intercept	-0.0297	-0.0288	-0.0208	-0.0196	-0.028	-0.02
	(-1.052)	(-1.408)	(-0.72)	(-0.933)	(-0.977)	(-0.963)
Scaled worker idle days	0.0028	0.0028	0.002	0.0018	0.002	0.0012
	(1.459)	(2.286)**	(1.09)	(1.557)	(1.312)	(1.901)*
Debt ratio	0.0143		0.0087		0.0167	
	(0.366)		(0.212)		(0.409)	
Scaled worker idle days ×	-0.0003		0.0001		-0.0005	
Debt ratio	(-0.069)		(0.032)		(-0.151)	
Adj. debt ratio		0.0347		0.0373		0.0327
		(1.055)		(1.017)		(0.924)
Scaled worker idle days ×		-0.0037		-0.0039		-0.0011
Adj. debt ratio		(-0.872)		(-0.939)		(-0.332)
Yearly change in debt ratio			0.041			
			(0.792)			
Scaled worker idle days ×			-0.0134			
Yearly change in debt ratio			(-0.704)			
Adj. yearly change in debt ratio				0.0094		
				(0.175)		
Scaled worker idle days ×				-0.0098		
Adj. yearly change in debt ratio				(-1.403)		
Quarterly change in debt ratio					0.0574	
					(1.168)	
Scaled worker idle days ×					-0.0721	
Quarterly change in debt ratio					(-3.001)***	
Adj. quarterly change in debt ratio						0.0449
						(0.99)
Scaled worker idle days ×						-0.059
Adj. quarterly change in debt ratio						(-4.669)***
Right to work law	0.0224	0.0225	0.0212	0.0206	0.0194	0.018
	(1.589)	(1.6)	(1.466)	(1.423)	(1.338)	(1.244)
Scaled worker idle days ×	-0.0022	-0.0016	-0.0019	-0.0013	-0.0011	-0.0011
Right to work law	(-1.345)	(-1.076)	(-1.201)	(-0.901)	(-0.781)	(-1.056)
Unemployment rate	0.5525	0.5854	0.4751	0.479	0.4971	0.4232
	(1.893)*	(2.05)**	(1.569)	(1.608)	(1.681)*	(1.45)
Scaled worker idle days ×	-0.0381	-0.0446	-0.0303	-0.0319	-0.025	-0.0115
Unemployment rate	(-1.628)	(-1.846)*	(-1.418)	(-1.397)	(-1.651)	(-0.711)
Market share	-0.0716	-0.0739	-0.0604	-0.0724	-0.0678	-0.0833
	(-1.37)	(-1.403)	(-1.074)	(-1.245)	(-1.201)	(-1.481)
Scaled worker idle days ×	0.0022	0.0033	0.0009	0.0029	0.002	0.0054
Market share	(0.618)	(0.948)	(0.239)	(0.87)	(0.684)	(2.093)**
Industry concentration	0.0403	0.0414	0.0241	0.0352	0.0397	0.0567
	(0.661)	(0.676)	(0.37)	(0.529)	(0.603)	(0.861)
Scaled worker idle days ×	-0.0028	-0.0026	-0.0016	-0.002	-0.0022	-0.0062
Industry concentration	(-0.653)	(-0.656)	(-0.381)	(-0.483)	(-0.699)	(-2.051)**
R square	0.109	0.116	0.111	0.12	0.138	0.166
Adj_R square	0.044	0.051	0.03	0.04	0.061	0.091
N	162	162	157	157	159	159
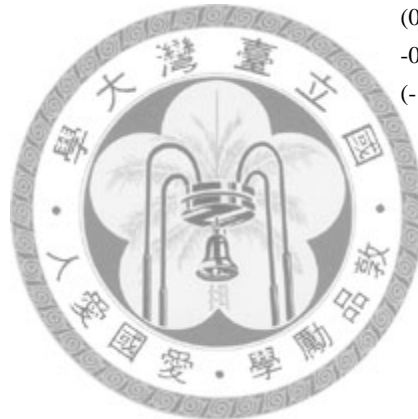
Table 8

Regressions of operating performance change on diversification measures

This table reports OLS regressions of long run operating performance change on strike and firm characteristic variables. The dependent variable is the change of operating performance form year -1 to 1. Scaled worker idle days is strikers to employee ratio times strike duration. Diversification dummy equals to one for firms reporting more than one segment in the COMPUSTAT segment file. Diversification is the entropy measure of total diversification proposed by Palepu (1985). Related (unrelated) diversification is the entropy measure of related (unrelated) diversification. Herfindahl measures are sales based herfindahl measured of diversification at two-digit or four-digit SIC industry level. Right to work law is set to one for strikes in the state which enforces Right to work laws prior to the strikes. For multi-state strikes, this value is the average number of strike state with Right to work laws. Unemployment rate is the monthly unemployment rate in the strike state. For multi-state strikes, this value is the average unemployment rate of the strike states. Market share is the sales of struck firm divide by industry total sales at four-digit SIC level. Industry concentration is the sales based Herfindahl index at four-digit SIC level. Numbers in parentheses are t-statistics with White (1980) adjustment. *, ** and *** denote 1%, 5% and 10% significant level for two-tail t-test, respectively.

Panel A: ROA $_{year+1}$ $-$ ROA $_{year-1}$ is used as the dependent variable

Model	1	2	3	4	5	6
Intercept	-0.0131	-0.0324	-0.0281	-0.0223	-0.0234	-0.0338
	(-0.55)	(-1.379)	(-1.133)	(-0.876)	(-0.908)	(-1.462)
Scaled worker idle days	0.0014	0.0026	0.0022	0.0007	0.0006	0.0028
	(0.974)	(1.57)	(1.531)	(0.468)	(0.434)	(1.6)
Diversification dummy	-0.0244					
	(-1.836)*					
Scaled worker idle days × Diversification dummy	0.0014					
	(2.72)***					
Diversification		-0.0067				
		(-0.608)				
Scaled worker idle days × Diversification		-0.0001				
		(-0.003)				
Related diversification			0.0221			
			(0.851)			
Scaled worker idle days × Related diversification			-0.004			
			(-1.682)*			
Unrelated diversification				-0.0172		
				(-1.448)		
Scaled worker idle days × Unrelated diversification				0.003		
				(2.633)***		
Herfindahl measure (2 digit SIC)					-0.0253	
					(-1.065)	
Scaled worker idle days × Herfindahl measure (2 digit SIC)					0.0048	
					(2.765)***	
Herfindahl measure (4 digit SIC)						-0.0077
						(-0.321)
Scaled worker idle days × Herfindahl measure (4 digit SIC)						-0.0006
						(-0.289)
Right to work law	0.014	0.0163	0.013	0.014	0.0146	0.0164
	(0.843)	(0.987)	(0.776)	(0.817)	(0.85)	(0.998)
Scaled worker idle days × Right to work law	-0.0004	-0.0009	0.0002	-0.0003	-0.0003	-0.0009
	(-0.236)	(-0.617)	(0.09)	(-0.173)	(-0.183)	(-0.621)
Unemployment rate	0.6227	0.7065	0.5741	0.6117	0.6095	0.7105
	(1.858)*	(2.03)**	(1.538)	(1.75)*	(1.732)*	(2.038)**
Scaled worker idle days × Unemployment rate	-0.0306	-0.0331	-0.0138	-0.0172	-0.0159	-0.0333
	(-1.018)	(-1.107)	(-0.506)	(-0.599)	(-0.54)	(-1.135)
Market share	-0.0858	-0.0845	-0.1042	-0.0837	-0.0894	-0.0868
	(-1.544)	(-1.488)	(-1.856)*	(-1.522)	(-1.615)	(-1.528)
Scaled worker idle days × Market share	0.0043	0.0041	0.0096	0.0054	0.0057	0.0044
	(1.036)	(0.938)	(1.73)*	(1.267)	(1.309)	(1.034)
Industry concentration	0.0611	0.0559	0.056	0.0522	0.0574	0.0559
	(0.93)	(0.862)	(0.876)	(0.811)	(0.882)	(0.866)
Scaled worker idle days × Industry concentration	-0.0059	-0.0051	-0.0094	-0.0062	-0.0064	-0.0053
	(-1.074)	(-0.936)	(-1.581)	(-1.148)	(-1.162)	(-0.992)
R square	0.103	0.087	0.111	0.107	0.104	0.086
Adj_R square	0.042	0.025	0.051	0.046	0.043	0.024
N	174	174	174	174	174	174

Panel B: ROA $_{year\,0}$ $-$ ROA $_{year-1}$ is used as the dependent variable

Model	1	2	3	4	5	6
Intercept	0.0223	0.003	0.0054	0.0037	0.0068	0.0048
	(1.252)	(0.208)	(0.356)	(0.244)	(0.458)	(0.325)
Scaled worker idle days	0.001	0.0013	0.0019	0.001	0.0008	0.0013
	(0.917)	(1.185)	(1.634)	(1.006)	(0.823)	(1.14)
Diversification dummy	-0.0169					
	(-1.417)					
Scaled worker idle days ×	0.0016					
Diversification dummy	(3.828)***					
Diversification		0.0104				
		(0.823)				
Scaled worker idle days ×		0.0012				
Diversification		(1.317)				
Related diversification			-0.005			
			(-0.317)			
Scaled worker idle days ×			0.0011			
Related diversification			(0.686)			
Unrelated diversification				0.0156		
				(1.009)		
Scaled worker idle days ×				0.0017		
Unrelated diversification				(1.482)		
Herfindahl measure (2 digit SIC)					0.0199	
					(0.804)	
Scaled worker idle days ×					0.0032	
Herfindahl measure (2 digit SIC)					(2.034)**	
Herfindahl measure (4 digit SIC)						0.0137
						(0.626)
Scaled worker idle days ×						0.0019
Herfindahl measure (4 digit SIC)						(1.213)
Right to work law	0.0153	0.0204	0.0183	0.019	0.0184	0.0199
	(1.12)	(1.523)	(1.316)	(1.378)	(1.338)	(1.474)
Scaled worker idle days ×	-0.0004	-0.001	-0.001	-0.0004	-0.0005	-0.0009
Right to work law	(-0.296)	(-0.765)	(-0.703)	(-0.338)	(-0.351)	(-0.683)
Unemployment rate	0.0369	0.1061	0.1386	0.0707	0.052	0.0996
	(0.18)	(0.507)	(0.665)	(0.334)	(0.247)	(0.476)
Scaled worker idle days ×	-0.0326	-0.0318	-0.0376	-0.0226	-0.0208	-0.032
Unemployment rate	(-1.613)	(-1.447)	(-1.902)*	(-1.136)	(-1.039)	(-1.413)
Market share	-0.0369	-0.038	-0.0287	-0.0495	-0.0462	-0.0362
	(-0.759)	(-0.812)	(-0.583)	(-1.022)	(-0.945)	(-0.763)
Scaled worker idle days ×	0.0039	0.0024	0.0016	0.005	0.0051	0.0025
Market share	(1.221)	(0.769)	(0.464)	(1.444)	(1.464)	(0.768)
Industry concentration	0.0184	-0.0024	0.0037	0.0162	0.0134	-0.0007
	(0.339)	(-0.043)	(0.065)	(0.293)	(0.243)	(-0.013)
Scaled worker idle days ×	-0.0054	-0.0029	-0.002	-0.0054	-0.0054	-0.003
Industry concentration	(-1.274)	(-0.714)	(-0.465)	(-1.199)	(-1.204)	(-0.703)
R square	0.096	0.086	0.067	0.092	0.089	0.08
Adj_R square	0.041	0.03	0.01	0.036	0.033	0.023
N	191	191	191	191	191	191

Panel C: Annualized ROA of year 0 and year 1 － ROA $_{year-1}$ is used as the dependent variable

Model	1	2	3	4	5	6
Intercept	0.004	-0.0162	-0.0123	-0.0118	-0.0105	-0.0158
	(0.207)	(-0.925)	(-0.673)	(-0.631)	(-0.56)	(-0.915)
Scaled worker idle days	0.0011	0.0021	0.0023	0.0011	0.0009	0.0023
	(0.967)	(1.61)	(1.878)*	(0.96)	(0.817)	(1.603)
Diversification dummy	-0.0201					
	(-1.678)*					
Scaled worker idle days ×	0.0015					
Diversification dummy	(3.656)***					
Diversification		0.0018				
		(0.179)				
Scaled worker idle days ×		0.0005				
Diversification		(0.543)				
Related diversification			0.0068			
			(0.382)			
Scaled worker idle days ×			-0.0016			
Related diversification			(-0.935)			
Unrelated diversification				-0.0001		
				(-0.013)		
Scaled worker idle days ×				0.0022		
Unrelated diversification				(2.192)**		
Herfindahl measure (2 digit SIC)					-0.0017	
					(-0.08)	
Scaled worker idle days ×					0.0038	
Herfindahl measure (2 digit SIC)					(2.808)***	
Herfindahl measure (4 digit SIC)						0.0029
						(0.147)
Scaled worker idle days ×						0.0004
Herfindahl measure (4 digit SIC)						(0.248)
Right to work law	0.0156	0.0193	0.0168	0.018	0.0179	0.0191
	(1.132)	(1.422)	(1.219)	(1.298)	(1.29)	(1.409)
Scaled worker idle days ×	-0.0003	-0.001	-0.0006	-0.0005	-0.0005	-0.001
Right to work law	(-0.322)	(-0.844)	(-0.417)	(-0.457)	(-0.445)	(-0.8)
Unemployment rate	0.3344	0.4196	0.3611	0.3657	0.3513	0.4158
	(1.323)	(1.597)	(1.318)	(1.38)	(1.328)	(1.582)
Scaled worker idle days ×	-0.0319	-0.0331	-0.0261	-0.0214	-0.0195	-0.0333
Unemployment rate	(-1.299)	(-1.297)	(-1.249)	(-0.931)	(-0.842)	(-1.306)
Market share	-0.066	-0.0654	-0.0721	-0.0705	-0.0716	-0.0658
	(-1.405)	(-1.386)	(-1.52)	(-1.495)	(-1.513)	(-1.39)
Scaled worker idle days ×	0.0042	0.0034	0.006	0.0052	0.0054	0.0036
Market share	(1.359)	(1.057)	(1.579)	(1.677)*	(1.712)*	(1.125)
Industry concentration	0.0416	0.0297	0.0353	0.0363	0.0374	0.0307
	(0.747)	(0.535)	(0.631)	(0.657)	(0.673)	(0.556)
Scaled worker idle days ×	-0.0057	-0.0042	-0.0063	-0.0059	-0.0059	-0.0044
Industry concentration	(-1.379)	(-1.029)	(-1.441)	(-1.459)	(-1.458)	(-1.063)
R square	0.115	0.092	0.096	0.106	0.107	0.09
Adj_R square	0.055	0.03	0.034	0.045	0.047	0.029
N	174	174	174	174	174	174
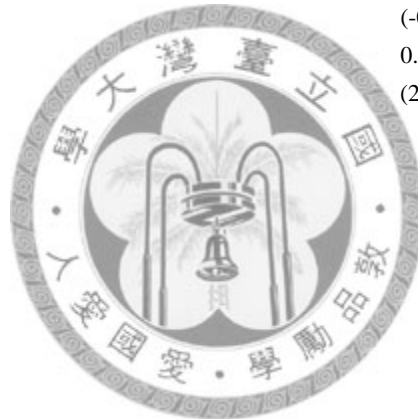
Table 9

Regressions of operating performance change on inventory measures

This table reports OLS regressions of long run operating performance change on strike and firm characteristic variables. The dependent variable is the change of operating performance form year -1 to 1. Scaled worker idle days is strikers to employee ratio times strike duration. Inventory is inventory to sales ratio measured at the fiscal quarter end of quarter -1. Adjusted inventory is inventory minus the industry median at four-digit SIC level. Yearly change in (adjusted) inventory is inventory of quarter -1 minus (adjusted) inventory of quarter -5. Quarterly change in (adjusted) inventory is inventory of quarter -1 minus (adjusted) inventory of quarter -2. Right to work law is set to one for strikes in the state which enforces Right to work laws prior to the strikes. For multi-state strikes, this value is the average number of strike state with Right to work laws. Unemployment rate is the monthly unemployment rate in the strike state. For multi-state strikes, this value is the average unemployment rate of the strike states. Market share is the sales of struck firm divide by industry total sales at four-digit SIC level. Industry concentration is the sales based Herfindahl index at four-digit SIC level. Numbers in parentheses are t-statistics with White (1980) adjustment. *, ** and *** denote 1%, 5% and 10% significant level for two-tail t-test, respectively.

Panel A: ROA $_{year+1}$ $-$ ROA $_{year-1}$ is used as the dependent variable

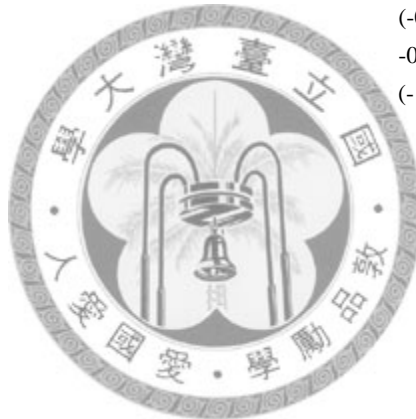| Model	1	2	3	4	5	6
Intercept	-0.0462	-0.0311	-0.0408	-0.0262	-0.042	-0.0248
	(-1.783)*	(-1.319)	(-1.567)	(-1.073)	(-1.541)	(-0.962)
Scaled worker idle days	0.0035	0.0028	0.0011	0.0018	0.0036	0.0029
	(1.907)*	(1.865)*	(1.036)	(1.161)	(1.797)*	(1.947)*
Inventory	0.0363		0.0394		0.043	
	(1.886)*		(2.153)**		(2.215)**	
Scaled worker idle days ×	-0.0014		0.0019		-0.0019	
Inventory	(-1.012)		(1.462)		(-0.909)	
Adj. Inventory		0.0053		0.0057		0.0141
		(0.272)		(0.274)		(0.679)
Scaled worker idle days ×		-0.0029		-0.0012		-0.0043
Adj. Inventory		(-1.777)*		(-0.529)		(-2.14)**
Yearly change in inventory			-0.0065			
			(-0.195)			
Scaled worker idle days ×			-0.0101			
Yearly change in inventory			(-2.679)***			
Adj. yearly change in inventory				0.0026		
				(0.067)		
Scaled worker idle days ×				-0.0034		
Adj. yearly change in inventory				(-1.214)		
Quarterly change in inventory					-0.0691	
					(-1.018)	
Scaled worker idle days ×					0.0019	
Quarterly change in inventory					(0.503)	
Adj. quarterly change in inventory						-0.0743
						(-0.987)
Scaled worker idle days ×						0.0052
Adj. quarterly change in inventory						(1.425)
Right to work law	0.0204	0.0131	0.0211	0.0128	0.022	0.0112
	(1.278)	(0.821)	(1.279)	(0.774)	(1.321)	(0.671)
Scaled worker idle days ×	-0.0013	-0.0002	0.0003	0.0002	-0.0011	0.001
Right to work law	(-0.892)	(-0.139)	(0.187)	(0.137)	(-0.937)	(0.601)
Unemployment rate	0.6411	0.6042	0.5214	0.5351	0.5298	0.5264
	(1.908)*	(1.808)*	(1.526)	(1.55)	(1.394)	(1.416)
Scaled worker idle days ×	-0.0338	-0.0244	-0.0062	-0.0074	-0.0318	-0.0285
Unemployment rate	(-1.406)	(-1.296)	(-0.302)	(-0.35)	(-1.336)	(-1.576)
Market share	-0.075	-0.0874	-0.0944	-0.0979	-0.0806	-0.1008
	(-1.318)	(-1.561)	(-1.624)	(-1.694)*	(-1.371)	(-1.734)*
Scaled worker idle days ×	0.0023	0.0039	0.0063	0.0051	0.0022	0.0058
Market share	(0.54)	(1.144)	(1.221)	(1.313)	(0.518)	(1.67)*
Industry concentration	0.0288	0.0574	0.0498	0.0674	0.0336	0.0706
	(0.433)	(0.889)	(0.732)	(1.009)	(0.493)	(1.061)
Scaled worker idle days ×	-0.0031	-0.0064	-0.0106	-0.0078	-0.0031	-0.0089
Industry concentration	(-0.571)	(-1.366)	(-1.551)	(-1.601)	(-0.553)	(-1.762)*
R square	0.099	0.103	0.135	0.111	0.107	0.115
Adj_R square	0.038	0.043	0.065	0.039	0.034	0.042
N	176	176	173	173	173	173

Panel B: ROA $_{year\,0}$ $-$ ROA $_{year-1}$ is used as the dependent variable

Model	1	2	3	4	5	6
Intercept	0.0073	0.0085	0.0096	0.0138	0.0087	0.0115
	(0.438)	(0.555)	(0.576)	(0.894)	(0.513)	(0.733)
Scaled worker idle days	0.0017	0.0017	0.0006	0.0007	0.002	0.0018
	(1.441)	(1.55)	(0.648)	(0.71)	(1.868)*	(1.904)*
Inventory	0.0031		0.0063		0.0129	
	(0.159)		(0.328)		(0.676)	
Scaled worker idle days ×	0.0001		0.0017		-0.0017	
Inventory	(0.111)		(1.323)		(-1.398)	
Adj. Inventory		0.0083		0.0144		0.0168
		(0.399)		(0.689)		(0.847)
Scaled worker idle days ×		-0.0002		0.0016		-0.0017
Adj. Inventory		(-0.123)		(0.943)		(-1.003)
Yearly change in inventory			-0.0248			
			(-0.727)			
Scaled worker idle days ×			-0.0049			
Yearly change in inventory			(-1.181)			
Adj. yearly change in inventory				-0.0288		
				(-0.835)		
Scaled worker idle days ×				-0.0033		
Adj. yearly change in inventory				(-1.037)		
Quarterly change in inventory					-0.0464	
					(-0.937)	
Scaled worker idle days ×					0.0061	
Quarterly change in inventory					(2.153)**	
Adj. quarterly change in inventory						-0.0175
						(-0.315)
Scaled worker idle days ×						0.0045
Adj. quarterly change in inventory						(1.208)
Right to work law	0.0179	0.0173	0.0212	0.0197	0.0187	0.0166
	(1.277)	(1.247)	(1.493)	(1.405)	(1.335)	(1.178)
Scaled worker idle days ×	-0.0007	-0.0007	0.0001	-0.0003	0.0001	0.0006
Right to work law	(-0.448)	(-0.41)	(0.035)	(-0.169)	(0.106)	(0.346)
Unemployment rate	0.0657	0.0709	-0.0052	-0.0166	0.0031	0.0572
	(0.321)	(0.348)	(-0.026)	(-0.082)	(0.015)	(0.273)
Scaled worker idle days ×	-0.0301	-0.0297	-0.0154	-0.0099	-0.0288	-0.0356
Unemployment rate	(-1.586)	(-1.663)*	(-0.954)	(-0.552)	(-1.756)*	(-2.05)**
Market share	-0.0364	-0.0365	-0.0412	-0.0429	-0.0281	-0.0343
	(-0.762)	(-0.74)	(-0.854)	(-0.872)	(-0.594)	(-0.705)
Scaled worker idle days ×	0.0037	0.0034	0.0057	0.0046	0.0025	0.0049
Market share	(0.897)	(0.935)	(1.27)	(1.142)	(0.955)	(1.448)
Industry concentration	0.0093	0.0102	0.0128	0.0152	-0.0035	0.0053
	(0.179)	(0.187)	(0.244)	(0.279)	(-0.069)	(0.1)
Scaled worker idle days ×	-0.004	-0.0037	-0.008	-0.0053	-0.0023	-0.0056
Industry concentration	(-0.773)	(-0.84)	(-1.395)	(-1.123)	(-0.705)	(-1.343)
R square	0.062	0.063	0.084	0.085	0.081	0.074
Adj_R square	0.005	0.006	0.016	0.017	0.013	0.005
N	193	193	190	190	190	190

Panel C: Annualized ROA of year 0 and year 1 － ROA $_{year-1}$ is used as the dependent variable

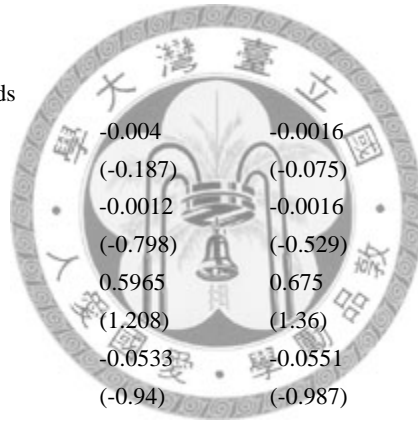| Model	1	2	3	4	5	6
Intercept	-0.0213	-0.0124	-0.0176	-0.0072	-0.0181	-0.007
	(-1.084)	(-0.705)	(-0.9)	(-0.399)	(-0.889)	(-0.373)
Scaled worker idle days	0.0029	0.0025	0.0011	0.0015	0.0031	0.0027
	(1.886)*	(1.975)**	(1.196)	(1.231)	(1.848)*	(2.173)**
Inventory	0.0213		0.0259		0.0296	
	(1.184)		(1.503)		(1.656)*	
Scaled worker idle days ×	-0.0007		0.0018		-0.0018	
Inventory	(-0.569)		(1.606)		(-1.129)	
Adj. Inventory		0.0073		0.0123		0.0169
		(0.397)		(0.647)		(0.92)
Scaled worker idle days ×		-0.0017		-0.0001		-0.0034
Adj. Inventory		(-1.144)		(-0.038)		(-2.036)**
Yearly change in inventory			-0.0239			
			(-0.737)			
Scaled worker idle days ×			-0.0073			
Yearly change in inventory			(-2.061)**			
Adj. yearly change in inventory				-0.0212		
				(-0.689)		
Scaled worker idle days ×				-0.0029		
Adj. yearly change in inventory				(-1.002)		
Quarterly change in inventory					-0.0634	
					(-1.165)	
Scaled worker idle days ×					0.0039	
Quarterly change in inventory					(1.367)	
Adj. quarterly change in inventory						-0.0555
						(-0.927)
Scaled worker idle days ×						0.0053
Adj. quarterly change in inventory						(1.805)*
Right to work law	0.0208	0.0164	0.0229	0.0173	0.0219	0.0151
	(1.555)	(1.222)	(1.656)*	(1.247)	(1.583)	(1.087)
Scaled worker idle days ×	-0.0012	-0.0006	0.0001	-0.0002	-0.0007	0.0007
Right to work law	(-0.93)	(-0.435)	(0.022)	(-0.116)	(-0.754)	(0.565)
Unemployment rate	0.3591	0.3412	0.2597	0.2666	0.2644	0.2847
	(1.42)	(1.366)	(1.031)	(1.049)	(0.965)	(1.051)
Scaled worker idle days ×	-0.0333	-0.028	-0.0116	-0.0107	-0.0315	-0.0331
Unemployment rate	(-1.596)	(-1.661)*	(-0.715)	(-0.617)	(-1.633)	(-2.098)**
Market share	-0.0602	-0.0668	-0.0735	-0.0755	-0.0596	-0.0741
	(-1.272)	(-1.402)	(-1.53)	(-1.554)	(-1.248)	(-1.544)
Scaled worker idle days ×	0.003	0.0038	0.0061	0.0049	0.0025	0.0056
Market share	(0.826)	(1.239)	(1.446)	(1.407)	(0.824)	(2.106)**
Industry concentration	0.0217	0.0376	0.0344	0.0444	0.0188	0.0434
	(0.395)	(0.68)	(0.614)	(0.789)	(0.34)	(0.783)
Scaled worker idle days ×	-0.0039	-0.0055	-0.0096	-0.0068	-0.0031	-0.008
Industry concentration	(-0.816)	(-1.405)	(-1.764)*	(-1.631)	(-0.779)	(-2.066)**
R square	0.095	0.098	0.134	0.112	0.108	0.113
Adj_R square	0.034	0.037	0.063	0.04	0.035	0.041
N	176	176	173	173	173	173

Table 10

Regressions of operating performance change on finished goods

This table reports OLS regressions of long run operating performance change on strike and firm characteristic variables. The dependent variable is the change of operating performance form year -1 to 1. Scaled worker idle days is strikers to employee ratio times strike duration. Finished goods is inventory classified as finished goods divided by sales measured at the fiscal quarter end of quarter -1. Adjusted finished goods is finished goods minus the industry median at four-digit SIC level. Yearly change in (adjusted) finished goods is finished goods of quarter -1 minus (adjusted) finished goods of quarter -5. Quarterly change in (adjusted) finished goods is finished goods of quarter -1 minus (adjusted) finished goods of quarter -2. Right to work law is set to one for strikes in the state which enforces Right to work laws prior to the strikes. For multi-state strikes, this value is the average number of strike state with Right to work laws. Unemployment rate is the monthly unemployment rate in the strike state. For multi-state strikes, this value is the average unemployment rate of the strike states. Market share is the sales of struck firm divide by industry total sales at four-digit SIC level. Industry concentration is the sales based Herfindahl index at four-digit SIC level. Numbers in parentheses are t-statistics with White (1980) adjustment. *, ** and *** denote 1%, 5% and 10% significant level for two-tail t-test, respectively.
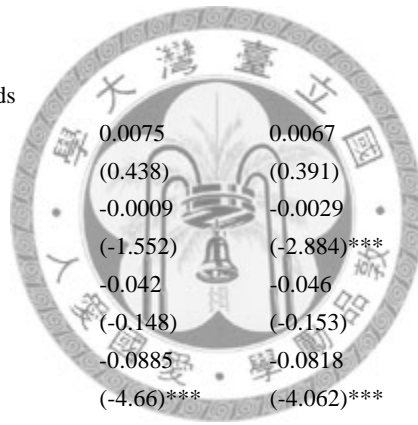
Panel A: ROA $_{year+1}$ − ROA $_{year-1}$ is used as the dependent variable

Model	1	2	3	4
Intercept	-0.009	-0.02	-0.0363	-0.0199
	(-0.24)	(-0.521)	(-0.958)	(-0.515)
Scaled worker idle days	0.0038	0.0047	0.0189	0.0102
	(1.867)*	(2.104)**	(5.138)***	(8.212)***
Finished goods	-0.12		0.2404	
	(-0.601)		(1.145)	
Scaled worker idle days ×	0.0107		-0.12	
Finished goods	(0.253)		(-3.11)***	
Adj. finished goods		-0.3076		0.0941
		(-1.371)		(0.421)
Scaled worker idle days ×		0.0115		-0.1069
Adj. finished goods		(0.379)		(-4.689)***
Yearly change in finished goods			-0.7287	
			(-1.34)	
Scaled worker idle days ×			0.27	
Yearly change in finished goods			(4.691)***	
Adj. yearly change in finished goods				-0.7491
				(-1.484)
Scaled worker idle days ×				0.3075
Adj. yearly change in finished goods				(6.052)***
Right to work law	-0.004	-0.0016	-0.016	-0.0204
	(-0.187)	(-0.075)	(-0.687)	(-0.865)
Scaled worker idle days ×	-0.0012	-0.0016	-0.0046	0.0008
Right to work law	(-0.798)	(-0.529)	(-4.341)***	(0.782)
Unemployment rate	0.5965	0.675	0.6133	0.536
	(1.208)	(1.36)	(1.243)	(1.088)
Scaled worker idle days ×	-0.0533	-0.0551	-0.1314	-0.1109
Unemployment rate	(-0.94)	(-0.987)	(-6.681)***	(-6.729)***
Market share	-0.1199	-0.1176	-0.1977	-0.2149
	(-1.523)	(-1.488)	(-2.25)**	(-2.48)**
Scaled worker idle days ×	0.0056	0.0053	0.0264	0.0322
Market share	(0.702)	(0.598)	(4.248)***	(5.502)***
Industry concentration	0.0695	0.0783	0.1672	0.1837
	(0.734)	(0.838)	(1.732)*	(1.961)*
Scaled worker idle days ×	-0.0076	-0.0077	-0.0248	-0.0269
Industry concentration	(-0.733)	(-0.714)	(-4.051)***	(-5.156)***
R square	0.12	0.129	0.243	0.253
Adj_R square	0.006	0.016	0.12	0.132
N	97	97	94	94

Panel B: ROA $_{year\,0}$ $-$ ROA $_{year-1}$ is used as the dependent variable

Model	1	2	3	4
Intercept	0.043	0.0298	0.0403	0.0336
	(2.173)**	(1.338)	(1.914)*	(1.539)
Scaled worker idle days	0.0024	0.006	0.0063	0.008
	(3.16)***	(5.865)***	(2.612)**	(7.646)***
Finished goods	-0.3111		-0.1993	
	(-1.936)*		(-1.238)	
Scaled worker idle days ×	0.0635		0.0316	
Finished goods	(4.595)***	(1.329)		(-0.047)
Adj. finished goods		-0.1644		-0.0091
		(-0.801)		(-0.047)
Scaled worker idle days ×		0.0396		0.0005
Adj. finished goods		(3.757)***	(0.034)	
Yearly change in finished goods			-1.1392	
			(-1.907)*	
Scaled worker idle days ×			0.0831	
Yearly change in finished goods			(2.234)**	
Adj. yearly change in finished goods				-1.2778
				(-2.337)**
Scaled worker idle days ×				0.1183
Adj. yearly change in finished goods				(3.473)***
Right to work law	0.0075	0.0067	-0.0032	-0.0068
	(0.438)	(0.391)	(-0.217)	(-0.452)
Scaled worker idle days ×	-0.0009	-0.0029	-0.0014	-0.0018
Right to work law	(-1.552)	(-2.884)***	(-2.277)**	(-2.811)***
Unemployment rate	-0.042	-0.046	-0.1706	-0.2196
	(-0.148)	(-0.153)	(-0.613)	(-0.76)
Scaled worker idle days ×	-0.0885	-0.0818	-0.1049	-0.0972
Unemployment rate	(-4.66)***	(-4.062)***	(-7.223)***	(-7.91)***
Market share	-0.0504	-0.0485	-0.0811	-0.0953
	(-0.734)	(-0.715)	(-1.202)	(-1.397)
Scaled worker idle days ×	0.0026	0.0016	0.009	0.0116
Market share	(1.007)	(0.526)	(2.263)**	(2.944)***
Industry concentration	0.0106	0.0034	0.0548	0.0571
	(0.132)	(0.042)	(0.746)	(0.749)
Scaled worker idle days ×	-0.0055	-0.0049	-0.0115	-0.0129
Industry concentration	(-1.564)	(-1.258)	(-2.928)***	(-3.538)***
R square	0.187	0.174	0.231	0.229
Adj_R square	0.089	0.074	0.114	0.112
N	103	103	100	100

Panel C: Annualized ROA of year 0 and year 1 － ROA $_{year-1}$ is used as the dependent variable

| Model	1	2	3	4
Intercept	0.0172	0.005	0.0028	0.007
	(0.664)	(0.187)	(0.106)	(0.264)
Scaled worker idle days	0.0031	0.0054	0.0125	0.0091
	(2.369)**	(3.565)***	(4.422)***	(8.51)***
Finished goods	-0.2129		0.0164	
	(-1.356)		(0.102)	
Scaled worker idle days ×	0.0375		-0.0434	
Finished goods	(1.409)		(-1.515)	
Adj. finished goods		-0.2351		0.037
		(-1.269)		(0.203)
Scaled worker idle days ×		0.0258		-0.0522
Adj. finished goods		(1.33)		(-3.164)***
Yearly change in finished goods			-0.9244	
			(-1.723)*	
Scaled worker idle days ×			0.1745	
Yearly change in finished goods			(3.925)***	0.2106
Adj. yearly change in finished goods				-0.9974
				(-2.05)**
Scaled worker idle days ×				0.2106
Adj. yearly change in finished goods				(5.416)***
Right to work law	0.0038	0.0046	-0.0074	-0.0114
	(0.216)	(0.259)	(-0.41)	(-0.632)
Scaled worker idle days ×	-0.0011	-0.0023	-0.003	-0.0006
Right to work law	(-1.174)	(-1.228)	(-3.788)***	(-0.889)
Unemployment rate	0.2632	0.3049	0.1982	0.1452
	(0.723)	(0.822)	(0.554)	(0.405)
Scaled worker idle days ×	-0.0714	-0.069	-0.1177	-0.1042
Unemployment rate	(-1.951)*	(-1.878)*	(-7.138)***	(-7.582)***
Market share	-0.0869	-0.085	-0.1426	-0.1581
	(-1.297)	(-1.271)	(-2.037)**	(-2.261)**
Scaled worker idle days ×	0.004	0.0033	0.0176	0.0217
Market share	(0.806)	(0.589)	(3.806)***	(4.978)***
Industry concentration	0.0406	0.0417	0.1153	0.124
	(0.488)	(0.505)	(1.453)	(1.569)
Scaled worker idle days ×	-0.0064	-0.0062	-0.018	-0.0197
Industry concentration	(-0.975)	(-0.881)	(-3.966)***	(-4.991)***
R square	0.165	0.164	0.248	0.259
Adj_R square	0.057	0.056	0.126	0.138
N	97	97	94	94
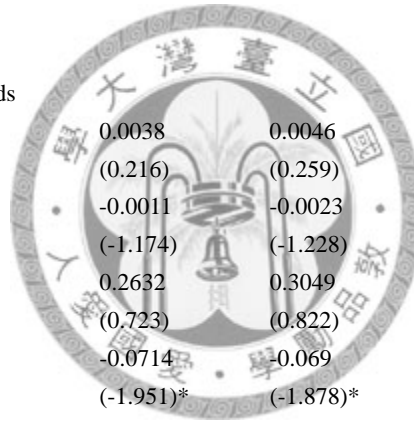
Table 11

Cost of good sold to sales ratio

This table presents level and changes of cost of good sold to sales ratio of struck firms. Industry adjusted values are unadjusted value minus industry median in two-digit SIC industries. Quarter -1 is defined as the fiscal quarter end prior to strikes. *, ** and *** present 1%, 5% and 10% significant level for two-tail *t*-test, respectively.

Quarter	N	Unadjusted		Industry adjusted	
		Mean	Median	Mean	Median
Panel A: Quarterly Levels of cost to good sold to sales ratio					
-4	232	0.7934 ***	0.7925 ***	0.0551 ***	0.0492 ***
-3	229	0.7843 ***	0.7908 ***	0.0458 ***	0.0512 ***
-2	234	0.7985 ***	0.7988 ***	0.0598 ***	0.0513 ***
-1	235	0.7806 ***	0.7896 ***	0.0462 ***	0.0469 ***
0	235	0.7882 ***	0.7935 ***	0.0508 ***	0.0514 ***
1	229	0.7826 ***	0.7896 ***	0.047 ***	0.0444 ***
2	228	0.7908 ***	0.7916 ***	0.0549 ***	0.0434 ***
3	228	0.7855 ***	0.7903 ***	0.0517 ***	0.0317 ***
4	228	0.7842 ***	0.7879 ***	0.0502 ***	0.0344 ***
5	222	0.7718 ***	0.7841 ***	0.0389 ***	0.0328 ***
6	221	0.7836 ***	0.7872 ***	0.0507 ***	0.0329 ***
7	216	0.7739 ***	0.7868 ***	0.0398 ***	0.0399 ***
Panel B: Quarterly changes of cost to good sold to sales ratio					
-1 to 0	235	0.0084 **	0.0021	0.0056	-0.0017
-1 to 1	229	0.002	0.0013	0.0013	0.0005
-1 to 2	228	0.009	0.0005	0.0086	-0.0037
-1 to 3	228	0.0059	-0.0066 **	0.0066	-0.0057 **
-1 to 4	228	0.0017	-0.0038	0.0028	-0.0066
-1 to 5	222	-0.0107 **	-0.0033 *	-0.0089 **	-0.005 *
-1 to 6	221	0.0033	-0.0007	0.0029	-0.0046
-1 to 7	216	-0.0107 **	-0.0054 **	-0.0102 **	-0.0079 **

Table 12

Economics significance

This table presents the economic significance of the bargaining power provided by corporate policies. The increased in cash ratio is the change in industry adjusted cash and cash equivalent to book asset ratio from quarter -2 to quarter -1. The increased in debt ratio is the change in industry adjusted debt in current liability and long-term dabt to book asset ratio from quarter -2 to quarter -1. The unrelated and related diversification is the entropy measure by Palepu (1985). The increase in finished good is the change in industry adjusted finished goods to sales ratio from quarter -2 to quarter -1. Industry adjusted values are unadjusted value minus industry median in two-digit SIC industries. Quarter -1 is defined as the fiscal quarter end prior to strikes. The coefficients are regression coefficients of the above corporate variable interacting with scaled worker idle days in Table 6 to Table 10. The mean of scaled worker idle days is the sample mean of strikers to employee ratio times strike duration in the regression. Std is the standard deviations of corporate variables for samples used in the regression. $\triangle$ ROA represent the change of ROA resulting from the change of bargaining power provided by one standard deviation increase in the corporate variable evaluated at the mean of scaled worker idle days, which is equal to Coefficient $\times$ Mean of scaled worker idle days $\times$ Std of corporate variables. Mean of asset is the mean of book asset for the sample used in the regression. $\triangle$ dollar value $=\triangle$ ROA $\times$ Mean of asset.

Corporate variables	Coefficient	Mean of scaled worker idle days	Std of corporate variables	$\triangle$ROA	Mean of asset (MM)	$\triangle$ dollar value (MM)
Panel A: ROA $_{year+1}$ $-$ ROA $_{year-1}$ is used as the dependent variable						
Increase in cash ratio	-0.0650	6.0207	0.0255	-0.0100	45,369	-452.75
Increase in debt ratio	-0.0721	6.3653	0.0572	-0.0263	40,710	-1068.69
Unrelated diversification	0.0040	5.8321	0.4578	0.0107	46,082	492.14
Related diversification	-0.0030	5.8321	0.3329	-0.0058	46,082	-268.41
Increase in finished good	0.3075	6.5246	0.0136	0.0273	58,809	1,604.66
Panel B: ROA $_{year0}$ $-$ ROA $_{year-1}$ is used as the dependent variable						
Increase in cash ratio	-0.0453	6.3954	0.0254	-0.0074	42,780	-314.80
Increase in debt ratio	-0.035	6.7404	0.0551	-0.0130	38,464	-499.99
Unrelated diversification	0.0017	6.2295	0.4535	0.0048	43,389	208.38
Related diversification	0.0011	6.2295	0.3365	0.0023	43,389	100.05
Increase in finished good	0.1183	6.2525	0.0132	0.0098	55,780	544.62
Panel C: Annualized ROA of year 0 and year 1 $-$ ROA $_{year-1}$ is used as the dependent variable						
Increase in cash ratio	-0.0528	6.0207	0.0255	-0.0081	45,369	-367.77
Increase in debt ratio	-0.059	6.3653	0.0572	-0.0215	40,710	-874.52
Unrelated diversification	0.0022	5.8321	0.4578	0.0059	46,082	270.68
Related diversification	-0.0016	5.8321	0.3329	-0.0031	46,082	-143.15
Increase in finished good	0.2106	6.5246	0.0136	0.0187	58,809	1,098.99