Hard Marriage with Heavy Burdens: Organized Labor as Takeover Deterrents

Xuan Tian
PBC School of Finance, Tsinghua University

Wenyu Wang
Kelley School of Business, Indiana University

We examine how labor power affects a firm's takeover exposure and merger gains. Using a regression discontinuity design that relies on "locally" exogenous variation in labor power generated by close-call union elections, we find that increased labor power significantly reduces a firm's takeover exposure, reduces target offer premium and announcement returns, and prolongs deal completion duration. The results are stronger for more powerful and conflict-provoking unions. Bidders of unionized targets are experienced, are tough negotiators, and face fewer union threats by themselves. Our paper provides new insights into the real effects of shareholder-employee conflict regarding the market for corporate control. (*JEL* G34, G30, J51)

Introduction

A firm is a nexus of contracts between multiple parties who possess different objective functions: shareholders focus on equity value; managers pursue to maximize compensation and enjoy their private benefits of control; and employees seek high wages, job security, and leisure. The

divergence of objective functions results in interest conflicts among these parties: a large literature dating back to Jensen and Meckling (1976) shows that managers do not always maximize shareholders' value when making corporate decisions, while a parallel stream of research documents that strong labor power can hurt firm value in the long run.[1]

Traditional corporate theories predict that takeover markets play a disciplinary role and help mitigate agency conflicts.[2] If the change of corporate control reduces the power of incumbent managers or labor force, it can help shareholders recoup efficiency gains from entrenched managers or organized labor force. However, such takeovers necessarily undermine the managers' or employees' utility, so objections from managers and employees are expected. Although most existing studies focus on investigating how agency conflicts between managers and shareholders influence corporate takeovers, we study, in this paper, how interest conflicts between a firm's labor force and shareholders (i.e., the shareholder-employee conflict) affect the market of corporate control.[3] This research question is particularly important for understanding the disciplinary role of takeover markets and the real effect of shareholder-employee conflicts: if strong labor power has a positive effect on firms' takeover exposure, its detrimental effects on firm value (Lee and Mas 2012) might be muted when acquirers restore the efficiency of targets after mergers. If, however, strong labor power deters takeovers, it blocks the opportunity for takeover markets to act as the "court of last resort" (Kini, Kracaw, and Mian 2004), double hitting the firms' value.

Previous studies have devoted to this line of research. Notably, Dessaint, Golubov, and Volpin (2017) exploit cross-country and time-series variation in employment protection to evaluate the causal effect of labor power on takeover activity in a global setting. They find that increases in employment protection result in reductions in takeover activities, combined firm gains, takeover premium, and layoffs following mergers, and they are able to identify the workforce restructuring as a driver of takeover activity and related economic outcomes. John, Knyazeya, and Knyazeya (2015) find that acquirers with strong labor rights make worse acquisitions, supporting the view that there exist interest conflicts between acquirer shareholders and employees. In this paper, we study the effect of shareholder-employee conflicts on the market of corporate control by exploring variations in labor power resulted from close-call union elections. We therefore examine the effect of organized

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[1] See, for example, Grout (1984), Connolly et al. (1986), Malcomson (1997), Lee and Mas (2012), Kim and Ouimet (2014), and Bradley et al. (2017).

[2] See, for example, Jensen (1988), Scharfstein (1988), and Kini et al. (2004).

[3] See, for example, Jensen and Meckling (1976), Morck et al. (1990), Bliss and Rosen (2001), and Harford and Li (2007).

labor in a more specific context of unionization. Unionization provides an ideal setting for our study, because labor unions represent employees in bargaining with their employer and the shareholder-employee conflicts become more material when labor unions are in place (McLaughlin and Fraser 1984; Abraham and Medoff 1984). In addition, organized labor covered by unions is powerful in affecting merger talks and influencing merger and acquisition (M&A) outcomes. We hope our study, built on union election outcomes (while holding regulation environment constant), could provide complementary evidence to the previous studies that exploit variation in labor power resulting from regulation changes.

We propose two competing hypotheses regarding the role of organized labor in M&As that are developed from prevailing views of unionization. Our first hypothesis postulates that organized labor attracts takeover bids and increases a firm's takeover exposure. According to the Q-theory of M&As proposed by Jovanovic and Rousseau (2002), acquirers actively search for underperforming targets and aim to achieve higher post-merger operation efficiency through aggressive cost-cutting restructuring. Firms with unionized workforce tend to have sticky wages and rigid employment contracts, which dramatically increase their operating costs and risks (Chen, Kacperczyk, and Ortiz-Molina 2011a) and constrain the firms' capability of restructuring. To the extent that a change in corporate control of a unionized firm leads to a stronger ex post bargaining position for the new employer (i.e., the acquirer), taking over a unionized, underperforming firm could allow the acquirer to unlock greater efficiency gains and recoup larger rents held by target organized labor. This view is consistent with Shleifer and Summers (1988) who argue that hostile takeovers serve to breach implicit labor contracts between incumbent managers and workers and transfer wealth from target employees to acquirer and target shareholders (see, e.g., Kaplan 1989; Davis et al. 2011; Li 2012; Becker 1995 for empirical evidence). Therefore, unionized firms may appear attractive as potential targets.

An alternative hypothesis generates the opposite empirical prediction, that is, a firm's organized labor reduces its takeover exposure. Organized labor deters takeovers for a few plausible reasons. First, if the change in corporate control cannot substantially alter collective bargaining contracts, target organized labor could bind the hands of the acquirer from realizing synergistic gains. This view is supported by numerous studies that document labor unions destroy firm value in the long run. Second, potential conflicts between target organized labor and acquirer employees or management could significantly increase the uncertainty of deal completion and threaten post-merger integration. This ex post threat discourages acquirers from bidding for unionized targets ex ante. We provide a more detailed discussion of anecdotal evidence supporting this view in the next section. Third, managers could form

alliances with workers in fending off takeover threats (Pagano and Volpin 2005; Kim and Ouimet 2014), and labor unions can be used as powerful weapons to protect incumbent managers. Last, Matsusaka, Ozbas, and Yi (2019) show that unions could use shareholder proposals opportunistically as bargaining chips to extract side payment from management. Acquirer managers may be worried about being targeted by organized labor after mergers and thus are reluctant to acquire unionized targets ex ante. Taken together, our second hypothesis argues that organized labor deters takeovers.

Identifying the causal effect of labor power on a firm's takeover exposure is challenging because of the endogenous nature of organized labor: for example, unionization status could be correlated with unobservable firm heterogeneity that affects a firm's takeover exposure (i.e., the omitted variable concern), or workers/managers may push for unionization to fend off potential takeover threats (i.e., the reverse causality concern).

To establish causality, we use a regression discontinuity design (RDD) that relies on locally exogenous variation in a firm's unionization status. The RDD compares takeover exposures of firms that barely pass union elections with those of firms that barely fail to pass union elections. For these close-call elections, passing is very close to an independent, random event and is unlikely to correlate with firm unobservable characteristics. This locally exogenous variation in unionization status allows us to identify the causal effect of labor power.

We collect union election outcomes between 1978 and 2008 from the National Labor Relations Board (NLRB) and M&A information from the SDC Mergers and Acquisitions database. We use four proxies to capture a firm's takeover exposure and merger gains: a firm's probability of receiving a takeover bid, a firm's abnormal stock returns upon receiving a takeover bid, offer premium a target firm receives, and the bid duration.

After performing various diagnostic tests to ensure that the key identifying assumptions of RDD are not violated, we show that strong labor power appears to have a causal, negative effect on a firm's takeover exposure and merger gains. According to our nonparametric local linear regression estimation, barely passing a union election reduces the average number of takeover bids a firm receives by 48% within 3 years after the union election. Conditional on receiving a takeover bid, a barely unionized target experiences a lower price runup and 3-day abnormal announcement return (19.6 percentage points lower in total) and receives a significantly lower offer premium (24.5 percentage points lower), compared with the targets that barely fail to pass union elections. It also takes 88 more days for a barely unionized target to close the deal, which is 65% longer than the average bid duration of 134 days in our sample.

These results are robust to alternative choices of bandwidths and become absent in two falsification tests in which we artificially choose

thresholds that determine union election outcomes and replace unionized firms with a group of nonunionized firms that are matched by industry, size, and market-to-book ratio. Overall, our findings are consistent with the hypothesis that strong labor power reduces a firm's takeover exposure and diminishes its merger gains.

The RDD tests we do in all above analyses estimate the effects of unionization on firms with vote outcomes that are around the cutoff point. RDD estimates have strong local implications but suffer from weak external validity. Following Angrist and Rokkanen (2015), we extend our estimates to the full spectrum of firms in our sample. We find that the negative effects of unionization on a firm's takeover exposure and merger gains are pervasive and not limited to the subset of firms with close-call elections. We do find, however, that the negative effect is stronger for firms with more contentious vote outcomes, probably because the potential shareholder-employee conflicts are more pronounced in these firms.

Next, we explore plausible underlying mechanisms. Specifically, we study how cross-sectional variation in labor union power and the conflict between target organized labor and potential acquirers alter our baseline results. We first use the state-level right-to-work legislation to capture labor unions' general bargaining power. In states that adopt right-to-work legislation, unions cannot force employees to join the union or pay union dues as preconditions of employment. Hence, in right-to-work states, unions have considerably lower bargaining power than those in states without right-to-work legislation. We find that the negative effect of unionization on takeover exposure is much stronger for firms whose union elections are held in states without right-to-work legislation. In contrast, the effect is absent for firms with union elections held in states with right-to-work legislation.

Second, we explore the variation in state-level successor statutes that captures labor unions' bargaining power specifically in M&A transactions. When business ownership changes hands, the continuation of union representation and the transfer of unexpired collective bargaining agreement (CBA) are critical to target employees' benefits. Federal successor doctrine provides limited guidance on the definition of a successor and the associated obligations (Huggett 1997). This gap grants states considerable autonomy in determining the unions' bargaining power in merger talks. Using hand-collected data on state-level successor statutes, we find that our baseline results are stronger for firms whose union elections are held in states with more union-friendly successor statutes.

In the third cross-sectional test, we classify deals based on whether or not an M&A transaction is a horizontal merger. Compared with other forms of M&A deals, horizontal mergers are more likely to result in divestitures of overlapping production lines and large-scale layoffs. In

addition, rival unions representing the same type of workers in the acquirers and targets in horizontal mergers are more likely to fight for post-merger union representation in the combined firms. As a result, potential conflicts between target unions and acquirers in horizontal mergers are more severe. Consistent with this conjecture, we find that the negative effect of labor unions is more pronounced in horizontal mergers.

In our last cross-sectional test, we show that our baseline results are more pronounced in firms with large unions (in terms of a large number of eligible employees and a large number of election participants normalized by the total number of employees in a firm). This is because large unions, if established, impose a heavier burden on the firms and the unionized labor has a greater power in voicing its opinions regarding the proposed M&A deals. These findings are consistent with our second hypothesis that unions are obstacles to takeovers, especially when unions have larger bargaining power and are more likely to create conflicts between the acquirer and target employees.

In the last part of our paper, we show that though organized labor appears a heavy burden to target firms, they do not seem to reduce the total value created in mergers: the combined firms involving unionized targets perform similarly to the ones involving nonunionized targets in terms of the combined firm announcement returns, post-merger profitability, and long-term market valuation. We find evidence that bidders of unionized targets differ from those of nonunionized targets: they on average conduct more merger deals in the past, possess higher bargaining power, and are subject to less threat from their own labor. These characteristics appear to make them more capable of dealing with target organized labor, unlocking efficiency gains, and creating value for the combined firms. The evidence suggests that target unions deter potential bidders who are inexperienced in dealing with organized labor, reducing the pool of potential bidders, and leaving only the most powerful and capable bidders acquiring unionized targets. Hence, reduced competition among these powerful and experienced bidders significantly diminishes the target firms' alternative options and bargaining power, which explains the lower offer premium and target announcement return that we documented earlier.

Our paper contributes to two strands of literature. First, our paper is related to studies that examine the effect of a firm's labor practices and employee rights on its takeover outcomes. Besides the two studies John, Knyazeva, and Knyazeva (2015) and Dessaint, Golubov, and Volpin (2017) that we discussed earlier, a few papers contributed to this literature. For example, Wang and Xie (2013) find that employee influence can exacerbate manager-shareholder conflicts if employees' incentives are more aligned with managers. Chang, Kang, and Zhang (2012) document

that corporate pension deficits motivate employees to closely monitor and influence managers' takeover decisions, supporting a disciplinary role of acquirers' employees. While these papers focus on investigating the effects of employee rights on acquiring firms, our paper examines how shareholder-employee conflicts could affect a firm's takeover exposure and merger gains as a takeover target.

Second, our paper contributes to the literature that examines various effects of organized labor on corporate investment and financial policies. Lee and Mas (2012) show negative abnormal returns over a long period to union victories, implying that unionization destroys shareholder wealth. Bradley, Kim, and Tian (2017) find that unions reduce firm value through their hindrance on firm innovation. Klasa, Maxwell, and Ortiz-Molina (2009) and Matsa (2010) show that unionized firms strategically hold less cash and are more likely to use financial leverage, which allows them to shield their cash flows from union demands. Chen, Kacperczyk, and Ortiz-Molina (2011a, 2011b) find that the cost of equity is significantly higher in more unionized industries while the cost of debt is lower in these industries. Our paper contributes to this literature by showing a tight link between organized labor and a firm's subsequent exposure to takeovers, an important field of corporate investment and financial policies.

1. Labor Unions in Takeovers

Though many previous studies have found that unions reduce firm values, DiNardo and Lee (2004), using the same RDD identification strategy as ours, show negligible economic effects of labor unions on firms' average survival rates, employment, output, productivity, and wages in recent decades. It could be tempting to conclude from their findings that, if labor unions do not affect a stand-alone firm's productivity, then they should not have a significant effect on the firm's takeover exposure either. This implication, however, may not be true, because M&As combine independent entities and even if labor unions have negligible effects on individual stand-alone firms, they can still become the bone of contention in M&As when multiple firms are involved. We discuss below a few union-induced problems that do not exist for stand-alone unionized firms but emerge as significant challenges to M&As.

First, most mergers inevitably lead to plant closures and layoffs. Target employees naturally resist takeover threats when they face employment uncertainty. As important stakeholders of target firms, target employees can voice their opinions on merger proposals and their attitude toward the deals is an important determinant of merger clauses, especially when they enjoy significant employee rights through labor

unions. Second, when both the target and the acquirer are unionized, rival unions may fight for representing the employees in the combined firm. Union conflicts are often difficult to reconcile and may negatively affect post-merger integration. Third, workers in different firms may have different labor contracts. As a result, combining employees from two firms usually requires acquirer management to negotiate new contracts with target employees. Members in acquirer and target unions are commonly subject to different seniority rules preacquisition, and such differences can create significant disagreement in the negotiation process and provoke prolonged tension. Last, abovementioned tension between acquirer management and target employees can persist long after the deal closure and threaten the acquirer's ability to pursue future takeovers if target unions are powerful.

Table A1 in the appendix presents some anecdotal evidence that exemplifies the problems discussed above. These cases are real-world M&A deals which we collect from news search through Factiva, LexisNexis, and other media sources. Our cases cover firms in industries such as airlines, financial service, entertainment, manufacturing, and utility. Because the airline industry has experienced a few mega-mergers, it has attracted the most media coverage and therefore could appear slightly overrepresented in our examples. We elaborate big events caused by union actions against proposed mergers in Table A1 in the appendix and provide a brief summary here.

In almost all cases, unemployment concerns and labor contract problems lead to conflicts. Rival union fights arise between large competing unions in acquirer and target (e.g., US Airways – America West merger and US Airways – American Airlines merger). Union conflicts often undermine post-merger integration (e.g., American Airlines – Trans World Airline merger, Continental – United merger, and US Airways – American Airlines merger). Union oppositions also delay merger talks and increase deal uncertainty (e.g., Cooper Tire & Rubber – Apollo Tyres merger, LaFarge – Holcim merger, and Philadelphia Gas Works – UIL merger). Even though in only one out of 11 cases (i.e., Philadelphia Gas Works – UIL merger), the target's labor union eventually fends off the bidder, it does not imply the effect of unions is by any means small. This is because target unions deter potential bidders who are inexperienced in dealing with labor unions, reducing the pool of potential bidders. Taking into account possible oppositions of target unions, only most competent bidders propose their bids.

Overall, we believe that labor unions could create unique and substantial challenges for firms when they engage in M&As, challenges that may otherwise not exist when firms remain standalone, as documented by DiNardo and Lee (2004).

2. Data and Summary Statistics

We compile our data set from multiple sources. We collect union election data from the NLRB between 1978 and 2008. It contains employer name, location, SIC code, the date of the election, the number of participants, and the outcomes of the voting.[4] We eliminate observations if the election outcome is not available or if the number of employees participating in the election is less than 100, consistent with Lee and Mas (2012). The analysis of takeover premium, announcement returns, and other measures of takeovers require information on firm performance and valuation. Hence, we restrict our union election sample to publicly traded firms. We identify a total of 4,160 unique union elections for public firms. Some firms have union elections in consecutive years. To mitigate the confounding effects of multiple union elections on a firm's takeover exposure, we only keep those that have no preceding elections in the past 4 years and no subsequent elections in the next 4 years of the election close date. We also require that the state information of union elections be available. Our final sample consists of 1,814 elections between 1978 and 2004.

Figure 1 plots a time series of union election frequencies and passage rates for our sample period. In the early 1980s, the number of firms holding union elections spikes considerably before sharply declining. Beyond this period, there is a quite stable trend with roughly 50 elections per year. The second plot in Figure 1 shows passage rates for union elections across time. There is considerable variation through time, but in each year the majority of union elections fail to pass, which is consistent with the general downtrend of unionization rates in the United States. We also check and find that the time series of union elections do not exhibit an obvious comovement with merger waves.

We collect all takeover bids from the SDC Mergers and Acquisitions database between 1978 and 2008. Our takeover sample stops at year 2008, because we investigate a firm's takeover exposure up to 3 years after union elections. We require that the M&A deal value exceeds $1 million and the bidder seeks to acquire more than 50% of target shares to gain the control of the firm and holds less than 50% of target shares beforehand. We then link the takeover data to the union election data as follows: for each firm in our union election data set, we identify takeover bids it receives within 3 years after its union election. We then compute the total number of bids each firm receives as a measure of the firm's post-election takeover exposure. For a few bids that do not have offer premium information in the SDC database, we manually search Factiva

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[4] For a thorough discussion of the union election process, see DiNardo and Lee (2004, pp. 1388–92).
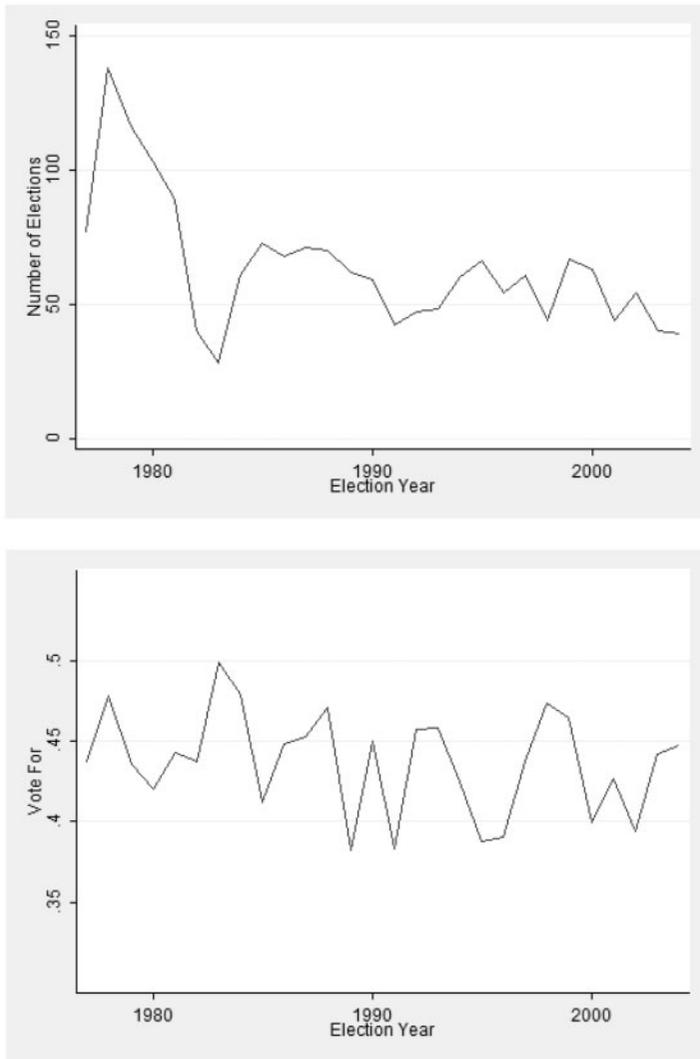
Figure 1
Number of union elections and passage rates by year
This figure plots the number of union elections by year (top) and the average passage rates by year (bottom) in our final sample. Union election results are from the National Labor Relations Board (NLRB) over 1978 to 2004.

and LexisNexis for complementary information and fill out the missing data when available.

We report summary statistics in Table 1. Among 1,814 union elections in our sample, 44% of them are in favor of unionization with a standard deviation of 21%. The passage rate is 30%, which suggests that

Table 1
Summary statistics

	Obs.	Mean	SD	Median
Union election statistics				
Vote for union	1,814	0.44	0.21	0.39
Passage	1,814	0.30	0.46	0.00
Takeover statistics (bids received by firms in our sample)				
Offer premium	96	0.45	0.26	0.43
Tar 3-day ann. ret.	96	0.19	0.19	0.16
Tar 4-wk runup	96	0.09	0.16	0.07
Tar runup + Ann. ret.	96	0.28	0.22	0.26
Bid duration (days)	95	134	127	99
Bid completion rate	119	0.76	0.35	1.00
Cash bids	82	0.45	0.50	0.00
Equity bids	82	0.15	0.35	0.00
Takeover statistics (all merger bids for U.S. public targets from 1978 to 2008)				
Offer premium	7,490	0.43	0.35	0.35
Tar 3-day ann. ret.	7,604	0.20	0.19	0.15
Tar 4-wk runup	7,604	0.09	0.17	0.06
Tar runup + Ann. ret.	7,604	0.29	0.26	0.26
Bid duration (days)	9,282	142	122	121
Bid completion rate	10,306	0.80	0.39	1.00
Cash bids	8,848	0.40	0.49	0.00
Equity bids	8,848	0.34	0.47	0.00

This table presents summary statistics of our sample. We report union election statistics and takeover statistics. "Vote for union" is the total number of votes in favor of unionization divided by total votes in a given election. "Passage" is an indicator variable that equals one if a firm is unionized as a result of an election and otherwise zero. "Offer premium" is defined as the bid price per share divided by the price of target stock 4 weeks before takeover announcement. "Tar 3-day ann. ret." is the target's 3-day CAR around the bid announcement, computed using the market model. "Tar 4-wk runup" is the target's 4-week price runup before the bid announcement, computed using the market model. "Tar runup + Ann. ret." is the sum of target's 3-day CARs and 4-week price runup, referred to as the cumulative abnormal announcement returns (CARs). "Bid duration" is the number of days between the bid announcement and bid completion or withdrawal for all single-bidder bids. "Bid completion rate" is the number of completed bids divided by the total number of all bids. "Cash bids" is the number of all-cash bids divided by the total number of bids whose methods of payment are available. "Equity bids" is the number of all-equity bids divided by the total number of bids whose methods of payment are available. Union election results are from the National Labor Relations Board (NLRB) over 1978 to 2004. Takeover data are from the SDC database over 1978 to 2008.

approximately one third of elections lead to unionization. We identify 119 bids received by firms in our sample within 3 years after their union elections. The average offer premium is about 45% and the average 3-day cumulative abnormal return (CAR) for the target is 19%. Consistent with the findings in previous studies that part of target merger gains are revealed to the market before takeover announcements, we find a sizeable target price runup of 9% (i.e., abnormal returns computed using the market model) during the month right before the takeover announcement. We therefore compute the sum of target 3-day CAR and 1-month price runup as a measure of target announcement returns, which we refer to as the cumulative abnormal announcement return (CAR) henceforth. We also compute the duration of bid negotiation for all single-bidder mergers, defined as the total number of calendar days between the bid announcement date and the bid completion (or withdrawal) date. The

mean (median) of bid duration is 134 (99) days, with a standard deviation of 127 days. We compare the distribution of our sample variables with that from the sample including all takeover bids for U.S. public targets between 1978 and 2008 and find that they are similar to each other.

3. RDD and Main Results

We present our main results in this section. Section 3.1 discusses our empirical strategy and reports diagnostic tests to validate the use of RDD. Section 3.2 presents our main RDD results. Section 3.3 reports two falsification tests to ensure that the main results are not spurious. Section 3.4 justifies the magnitude of our estimates with the labor unions' power in M&As.

3.1 Empirical strategy and diagnostic tests

A standard but naïve approach to evaluate the effect of unionization on a firm's takeover exposure is to estimate the following model using the ordinary least squares (OLS) in a firm-year panel:

$$TakeoverExposure_{i,t \to t+N} = \alpha + \beta Unionization_{i,t} + \gamma^{'} Z_{i,t} + \varepsilon_{i,t}, \quad (1)$$

where i indexes firm, t indexes time, and N indexes the study horizon on takeover exposure. The dependent variable, *Takeover exposure*, is one of the takeover exposure measures, such as the number of bids received, offer premium, announcement returns, and bid duration. The variable of interest is *Unionization*, which is a binary variable that equals one if the union election passes and leads to unionization and zero if the union election fails to lead to unionization. Z is a vector of observable determinants of a firm's takeover exposure.

However, as discussed before, unobservable firm characteristics correlated with both union election outcomes and takeover exposure could bias the results: firms that want to attract or deter takeovers may be more likely to unionize. Therefore, β estimated from Equation (1) cannot be interpreted as a causal effect of unionization.

To establish causality, we exploit a unique feature of the union election data: we observe the percentage of votes for unionization in every election. Union election results are determined by a simple majority rule: the workplace is unionized if the fraction of votes for unionization passes 50%. RDD relies on "locally" exogenous variation in unionization status generated by union elections that pass or fail by a small margin of votes around the 50% threshold. Conceptually, this empirical approach compares the subsequent takeover exposure of firms that pass the union elections by a small margin to that of firms that do not pass the elections by a small margin. For these close-call elections, randomized variation in
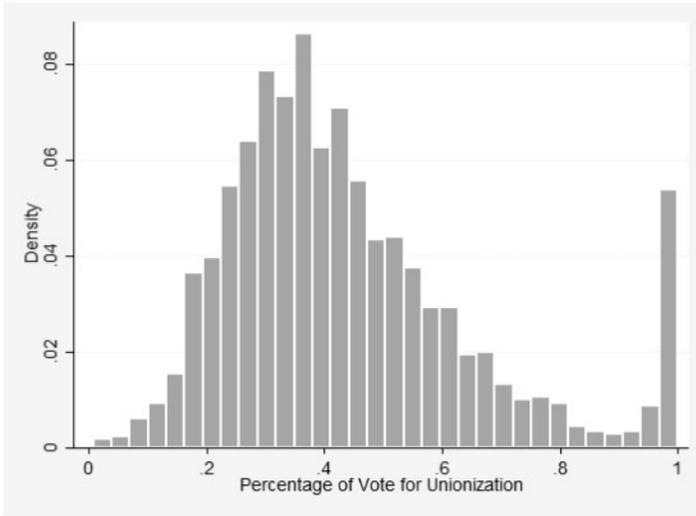
Figure 2
Distribution of votes
This figure plots a histogram of the distribution of the number of elections with the percentage of votes for unionizing in our sample across 40 equally spaced bins (with a 2.5% bin width). Union election results are from the National Labor Relations Board (NLRB) over 1978 to 2004.

firm unionization status helps us identify the causal effect of unionization on a firm's takeover exposure. Another advantage of RDD is that we do not have to include observable covariates, Z, in the analysis because the inclusion of covariates is unnecessary for identification (Lee and Lemieux 2010). Thus, we are able to make use of nearly all of our observations even though some of them have missing data on covariates.

A key identifying assumption of RDD is that agents (both voters and employers in our setting) cannot *precisely* manipulate the forcing variable (i.e., the number of votes in favor of unionization) near the known cutoff (Lee and Lemieux 2010).[5] If this identifying assumption is not violated, the variation in union recognition status is as good as that obtained from a randomized experiment. To check the validity of this assumption, we perform two diagnostic tests.

First, Figure 2 presents a histogram of union vote share distribution in 40 equally spaced vote share bins (with a bin width of 2.5%) with the *x*-axis representing the percentage of votes in favor of unionization. If there is a systematic sorting of firms within close proximity of the threshold, this sorting would be observed by a discontinuity in the vote share distribution at the 50% vote threshold. The figure shows that the vote share

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[5] Lee (2008) shows that, even in the presence of manipulation, as long as firms do not have precise control over the forcing variable, an exogenous discontinuity still allows for random assignment to the treatment.
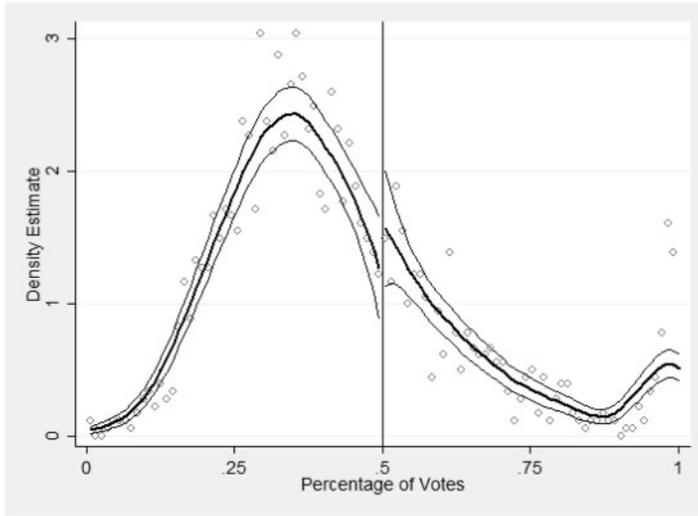
Figure 3
Density of union vote shares
This figure plots the density of union vote shares following the procedure in McCrary (2008). The *x*-axis is the percentage of votes favoring unionization. The dots represent the density estimate. The solid line represents the fitted density function of the forcing variable (the number of votes) with a 95% confidence interval around the fitted line. Union election results are from the National Labor Relations Board (NLRB) over 1978 to 2004.

distribution is continuous within close proximity of the cutoff. Therefore, there is no evidence of precise manipulation by either workers or firms at the cutoff point.

Second, we follow McCrary (2008) and provide a formal test of a discontinuity in the density at the cutoff. Using the two-step procedure developed in McCrary (2008), Figure 3 plots the density of union vote shares.[6] The *x*-axis represents the percentage of votes favoring unionization. The dots depict the density and the solid line represents the fitted density function of the forcing variable (i.e., the number of votes favoring unionization) with a 95% confidence interval around the fitted line. The density appears smooth and the estimated curve gives little indication of a strong discontinuity near the 50% threshold. The discontinuity estimate is 0.30 with a standard error of 0.19. Therefore, we cannot reject the null hypothesis that the difference in density at the threshold is zero. Overall, the two tests above suggest that the validity assumption of RDD, that is, that there is no precise manipulation by agents at the known threshold, is not violated. This finding is consistent with previous studies that use the same union election data (see, e.g., DiNardo and Lee 2004; Lee and Mas 2012).

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[6] See http://emlab.berkeley.edu/~jmccrary/DCdensity for a detailed discussion of the algorithm.

Table 2
Difference in observable characteristics between unionized and nonunionized firms

	Win = 1	Win = 0	Difference	p-value
Size	6.136	5.784	0.352	.131
ROA	0.040	0.047	−0.007	.509
Leverage	0.417	0.374	0.043	.204
q	1.312	1.346	−0.034	.722
Cash/asset	0.069	0.069	−0.000	.992
PPE/asset	0.354	0.385	−0.031	.154
Block	0.527	0.559	−0.032	.574
Industry bid	0.775	0.789	−0.014	.756
Staggered board	0.565	0.628	−0.063	.500
Golden parachute	0.609	0.657	−0.048	.599
Poison pills	0.587	0.528	0.058	.540
Supermajority in approving a M&A	0.130	0.185	−0.055	.436
Number of obs.	216	335		

This table shows differences in observable characteristics between firms that participate in union elections and win versus those that lose by a small margin (vote shares within the interval of [40%, 60%]). Union election results are from the National Labor Relations Board (NLRB) over 1978 to 2004. Firm characteristics are from Compustat, measured at 1 year prior to the union election close date. Size is the logarithm of a firm's market equity. ROA is the return on assets. Leverage is the book debt to total assets ratio, and q is the ratio of market-to-book value of assets, where market assets are defined as total assets plus market value of common stock minus book common equity and deferred taxes. Cash/asset is cash and short-term investments scaled by the total assets. PPE/asset is property, plant, and equipment, scaled by the total assets. Block is a dummy variable equal to one if (at least) one institutional investor holds more than 5% of the company stock and zero otherwise. Industry bid equals one if there was a takeover in a firm's industry in the prior year. Staggered board, Golden parachute, Poison pills, and Supermajority in approving M&As are dummy variables that equal one if certain provisions are adopted by the firms.

Another important assumption of RDD is that there should not be discontinuity in other covariates that are correlated with a firm's takeover exposure at the cutoff point. In other words, firms that are barely unionized should not be systematically different from firms that barely fail to unionize. We perform this diagnostic test by comparing the covariates of firms that fall in a narrow band of vote shares [40%, 60%] around the winning threshold of 50%.

We report the results in Table 2. Within the band of [40%, 60%], we have 335 observations falling below 50% and 216 observations falling on or above 50%. Observable covariates include firm size, profitability, leverage, q, cash holdings, asset tangibility, external blockholder ownership, and industry takeover activities. We also compare powerful antitakeover provisions firms could adopt such as staggered boards, golden parachute, poison pills, and supermajority in approving M&As. We create a dummy variable for each of them that equals one if a firm adopts the corresponding provision and zero otherwise. These covariates have been used in the prior literature seeking to explain takeover probability (see, e.g., Ambrose and Megginson 1992; Cremers, Nair, and John 2009; Cai, Tian, and Xia 2016). Some of them are also important determinants of offer premium and target announcement returns (see, e.g., Walkling 1985; Officer 2003, 2004; Bates, Becher, and Lemmon 2008;

Betton, Eckbo, and Thorburn 2008; Betton, Thompson, and Thorburn 2014; Eckbo 2014). These covariates are similar between firms that barely unionize and those that barely fail to *before* union elections, suggesting that for these close-call elections, election outcomes are unlikely to be correlated with firm observable characteristics. To make sure that the test of differences is robust in alternative bands, we also compare the covariates within the [48%, 52%] band. The statistics are quite similar and the differences between the two groups of firms are economically small and statistically insignificant.

Overall, the diagnostic tests suggest that there does not appear a precise manipulation by agents within close proximity of the 50% threshold. Further, there is no discontinuity in other covariates at the cutoff point before the union elections.

3.2 Main RDD results

We examine the effect of unionization on a firm's takeover exposure and merger gains over a 3-year horizon post-election. We first presents the RDD results in Figure 4 to visually check the relation between a firm's unionization status and its subsequent takeovers around the election cutoff. We investigate the number of bids that firms receive within 3 years after the union election (top-left panel), duration of bid negotiation (top-right panel), offer premium (bottom-left panel), and CARs (bottom-right panel). The *x*-axis represents the percentage of votes in favor of unionization. We once again divide the spectrum of vote shares into 40 equally spaced bins (with a bin width of 2.5%).[7] In all plots displayed, firms that fail to unionize are to the left of the 50% threshold and firms that succeed in unionizing are to the right of the threshold. The dots depict the average value of the variables within the bins. The solid line represents the fitted local polynomial kernel estimate with a 95% confidence interval around the fitted value.

The figures show a significant discontinuity in all measures at the threshold. Specifically, within close proximity of the threshold, the number of bids a firm receives within 3 years after the union election drops significantly if the percentage of votes in favor of unionization just crosses the 50% cutoff point. This finding suggests that, ceteris paribus, labor union reduces a firm's exposure to takeover attempts. Conditional on receiving a bid, firms that barely pass union elections appear to receive a significantly lower offer premium than those that barely fail to pass the union elections. Consistent with this finding, these firms also experience a significantly lower price runup and 3-day announcement

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[7] The choice of the bin width reflects the trade-off discussed in Imbens and Lemieux (2008). The bin width needs to be large enough to have a sufficient amount of precision so that the plots look smooth on either side of the threshold, but small enough to make the jump around the threshold clear. We use alternative bin widths and obtain similar results from both plots and regressions.
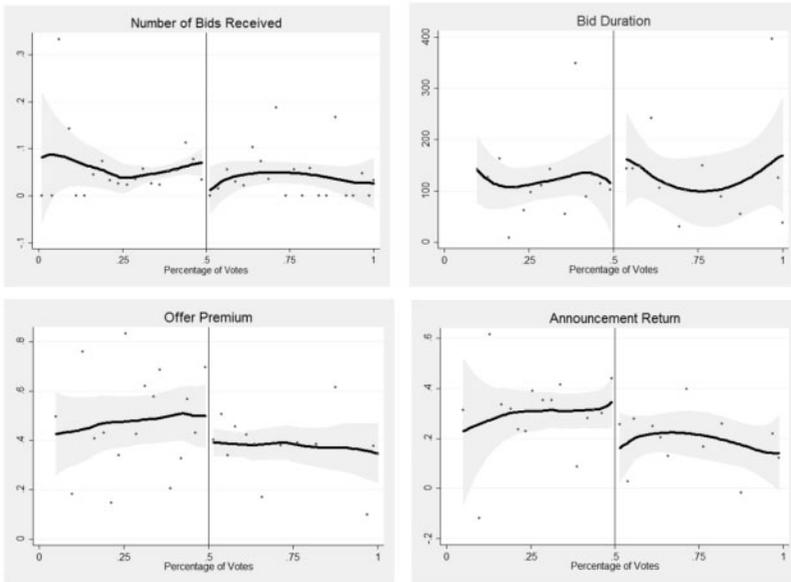
Figure 4
Regression discontinuity plots
This figure presents regression discontinuity plots using a fitted local kernel estimate with a 95% confidence interval around the fitted value. The x-axis is the percentage of votes favoring unionization. The dots represent different takeover exposure variables in each of 40 equally spaced bins (with a bin width of 2.5%). Union election results are from the National Labor Relations Board (NLRB) over 1978 to 2004. Takeover and stock valuation data are collected from SDC database and CRSP over the 1978 to 2008 time period.

return when the takeover bids are publicly announced. Bid negotiation process involving these barely unionized targets also seems to take a much longer time to finish.[8] Overall, our observations from these visual checks point to a negative, causal effect of unionization on a firm's takeover exposure and its merger gains.

Next, we employ a nonparametric local linear estimation to perform RDD tests formally. The baseline estimation results use the optimal bandwidth defined by Imbens and Kalyanaraman (2012) that minimizes the mean-square error (MSE) in a sharp regression discontinuity setting. The optimal bandwidth chosen in our setting is around 15% based on the algorithm. Within the band of [35%, 65%], we have in total 847 union elections and 52 bids. Furthermore, in Section 4, we extend our analysis to the full spectrum of firms where we make use of all observations in our

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[8] Note that firms without unions are more likely to receive multiple competing bids than unionized firms do, and the bid duration of the contested bids is often longer than that of the single-bidder bids. To make a fair and meaningful comparison, we only contrast the average duration of all single-bidder bids received by firms in our sample.

Table 3
Regression discontinuity design

A. Coefficients of unionization (triangular kernel)

	Average number of bids received		Announcement returns	Offer premium	Bid duration (days)
	2 yr	3 yr			
Optimal bandwidth	−0.075***	−0.072**	−0.196**	−0.245**	88.3**
	(−3.02)	(−2.26)	(−2.45)	(−2.49)	(1.98)
75% optimal bandwidth	−0.072***	−0.078**	−0.205**	−0.280***	104.4**
	(−2.76)	(−2.18)	(−2.38)	(−2.56)	(1.99)
125% optimal bandwidth	−0.074***	−0.071**	−0.250***	−0.181*	67.2*
	(−3.18)	(−2.43)	(−3.15)	(−1.72)	(1.70)

B. Coefficients of unionization (rectangular kernel)

	Average number of bids received		Announcement returns	Offer premium	Bid duration (days)
	2 yr	3 yr			
Optimal bandwidth	−0.089***	−0.058*	−0.219***	−0.297***	99.0*
	(−3.15)	(−1.73)	(−2.56)	(−2.89)	(1.70)
75% optimal bandwidth	−0.078***	−0.088**	−0.220**	−0.262**	194.7*
	(−2.68)	(−2.35)	(−2.33)	(−2.13)	(1.69)
125% optimal bandwidth	−0.072***	−0.072**	−0.218***	−0.140	56.2
	(−2.76)	(−2.44)	(−2.73)	(−0.95)	(1.00)

C. Parametric polynomial regression

Orders of polynomials	Average number of bids received		Announcement returns	Offer premium	Bid duration (days)
	2 yr	3 yr			
3	−0.100***	−0.098**	0.008	0.002	25.0
	(−2.93)	(−2.37)	(0.05)	(0.02)	(0.27)
5	−0.102**	−0.105**	−0.229	−0.063	138.4
	(−2.56)	(−2.19)	(−1.30)	(−0.32)	(1.21)
8	−0.105**	−0.107**	−0.266	−0.014	228.3*
	(−2.35)	(−1.98)	(−1.23)	(−0.06)	(1.70)

This table presents RDD results from nonparametric local linear regressions and parametric polynomial regressions. Nonparametric local linear regressions use the optimal bandwidth following Imbens and Kalyanaraman (2012) and alternative bandwidths with triangular kernels (panel A) and rectangular kernels (panel B). Parametric polynomial regressions use polynomial functions of different orders (panel C). The dependent variables are the number of bids received within 2 or 3 years post-union election, target firm announcement returns, offer premium, and bid duration. Union election data are from the National Labor Relations Board (NLRB) over 1978 to 2004. Takeover data are from the SDC database over 1978 to 2008.
*$p < .1$; **$p < .05$; ***$p < .01$.

sample. As we show later, results are consistent in these two sets of analyses.

In panels A and B of Table 3, we report the local linear estimation results using both a triangular kernel and a rectangular kernel.[9] All

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[9] As Imbens and Lemieux (2008) point out, the choice of kernel typically has little impact on estimation in practice. The statistics literature has shown that a triangular kernel might be optimal for estimating local linear regressions at the boundary, because it puts more weight on observations closer to the cutoff point.

coefficient estimates on *Unionization* are statistically significant with similar magnitudes in both specifications, confirming the negative effect of organized labor on a firm's takeover exposure and merger gains we observe in Figure 4. The economic effect is sizable: the estimates suggest that firms passing a union election receive 0.072 fewer takeover bids in the next 3 years after the union election, which represents a significant reduction compared with the average number of bids a typical public firm receives in a 3-year period (an average public firm in Compustat receives 0.15 bids in a 3-year period).

Conditional on receiving a takeover bid, firms that barely pass the union election receive a significantly lower offer premium and enjoy a much lower CAR. The magnitudes of reductions are economically sounded. For example, barely unionized targets receive an average offer premium that is 24.5 percentage points lower than nonunionized targets. They also experience a CAR that is 19.6 percentage points lower on the takeover announcement, including the preannouncement price runup. Target CARs and offer premiums can reflect common information (e.g., merger synergy, target bargaining power), but we examine the two separately in our tests, because each offers its own pros and cons.[10] Meanwhile, unionized firms take much longer to complete the deal, as evidenced by the fact that the bid duration is about 88 days longer when the M&A deal involves unionized targets.

We also report in Table 3 the nonparametric local linear regression results with alternative bandwidths that are 75% and 125% of the optimal bandwidth defined by Imbens and Kalyanaraman (2012). Our baseline results continue to hold for specifications using alternative bandwidths and the magnitudes of coefficients remain similar across different bandwidths.

In an unreported analysis, we contrast other aspects of deal characteristics between unionized and nonunionized targets. We find that the probability of deal completion is lower for unionized targets, though the difference is not statistically significant at the 10% level. This finding, however, does not necessarily suggest a negligible effect of unionization on bid completion rate, because taking into account possible oppositions of target unions, only bidders that are more confident and capable of completing the mergers will propose the bids while other potential bidders may have already been deterred from bidding ex ante. The methods of payment, in general, do not exhibit a strong correlation with the targets' unionization status.

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[10] Offer premium is a direct measure of the acquirer's valuation of the target. Information on offer premium provided by SDC, however, contains much noise and can be inaccurate. We therefore examined the target's CARs. The advantage of looking at target CARs, which are a market-based measure, is that the measure is arguably more reliable, but the disadvantage is that the measure also captures the market's perceived probability of deal completion.

The nonparametric local linear estimation above focuses on an estimation of data within a small bandwidth around the assignment cutoff. It reduces potential biases resulting from imposing a functional form in regressions but comes at the cost of limitations imposed on the analysis due to the smaller sample size. We therefore complement the nonparametric local linear estimation with a parametric RDD estimation using a global polynomial regression. Specifically, we follow Campello et al. (2017) and run the following regression:

$$TakeoverExposure_{i,t \to t+N} = \alpha + \beta \cdot Pass_{i,t} + \sum_{n=1}^{p} \tau_n \cdot (X_{i,t} - 0.5)^n + \gamma' Z_{i,t} + \varepsilon_{i,t},$$

(2)

where $Pass_{i,t}$ is an indicator for union victory that equals one if the vote share surpasses 50% and zero otherwise, $X_{i,t}$ is the union vote share in the election. The key coefficient of interest, β, captures the jump in the dependent variable *TakeoverExposure* (e.g., the number of bids received, announcement returns, offer premium, and bid duration) as the vote share just passes 50% cutoff. We use polynomial functions of different orders ($p = 3, 5, 8$) in Equation (2). Given that M&As were driven by quite different motives in 1980s, 1990s, and 2000s and merger waves occurred at industry level, we control for decade fixed effects and the Fama-French 17 industry fixed effects in the regressions.

Panel C of Table 3 summarizes the estimates of β for different dependent variables obtained from polynomial functions of different orders. The results suggest that unionization has a strong, negative effect on a firm's probability of being acquired, and the magnitude of coefficient is similar to (slightly stronger than) that in the nonparametric linear regressions. The effects of unionization on announcement returns and offer premiums remain negative in the global polynomial regressions but lose their statistical significance. Unionization also leads to a longer duration of bid negotiation and the effect is marginally significant when higher order of polynomial function ($p = 8$) is employed.

Overall, the RDD results, obtained from both the nonparametric local linear estimation and parametric global polynomial regression, confirm our visual observation presented in Figure 4, suggesting a negative, causal effect of organized labor on a firm's takeover exposure.

3.3 Falsification tests
In this subsection, we perform two falsification tests to ensure that our main results are not spurious. In the first test, we randomly select an alternative cutoff point along the spectrum of union vote shares between 0% and 100% other than 50%, and then use it as the threshold that determines union election outcomes and reestimate the local linear RDD

model with a triangular kernel. In the second test, we keep the observations of failed union elections in our sample, but for each passed union election, we replace the firm with a matched firm that has no union in place by the time of observation. The matched firms face a similar takeover environment as the unionized firms. The only significant difference between the unionized firms and their matched firms is their unionization status (by construction, the matched firms are nonunionized). Therefore, if our main RDD results truly capture a causal effect of labor unions on a firm's takeover exposure and are not driven by chance, the results should be absent when we compare firms with failed union elections and matched nonunionized firms. We find that the coefficient estimates are statistically insignificant in both falsification tests, and Section 1 of the Online Appendix provides more detailed discussions and results of these falsification tests.

3.4 Discussion

In this section, we examine the economic magnitude of our estimates and explore whether labor unions might be important enough to cause such effects.

First, it is important to note that the estimated effects on target announcement returns and offer premiums are both conditional values. The probability of receiving a bid, however, is quite low (less than 10% during the first 2 years post-union elections). It suggests that, even if the reduction in conditional merger gains appears large as 20% (Table 3), the unconditional loss to firm value is small at less than 2% for firms that pass union elections.

Second, the burden that target labor unions impose on the acquiring firms should not be interpreted merely as labor costs. Admittedly, the labor cost alone is unlikely to drive such a large reduction in offer premium. Two factors are at play: the reduced competition due to fewer potential bidders and the acquirer shareholders' concerns on post-merger integration with unionized targets. We present anecdotal evidence on how target unions may lead to failures of post-merger integration in Section 1 and Table A1 in the appendix. Therefore, our results emphasize the negative effects of target unions on *value creation* in M&A, and our results do *not* indicate that labor unions significantly destroy firms' *standalone* values.

Among unionized firms that receive takeover bids, the average union size is 10.2% of the total employees. The fraction of organized employees is significant but not dominant, raising the question whether they are powerful enough to generate sizeable damage to value created in M&As. It is worth noting that, most firms' production or service processes require collaboration of different types of workers. Interruption to

any intermediate step could halt or significantly delay their production or service. Unions usually cover the same type of workers, and, therefore, their protests or strikes can be very destructive to firm operation even if the unions do not cover a majority of workers. Taking airline industry as an example, if the pilot union sick-out or strike, flights have to be canceled even if flight attendants do not strike. Similar problems exist for manufacturing and other labor-intensive industries as well, in which unions have strong bargaining power through their threat of interrupting the key steps of firm operation.

Lastly, unionized firms may trade at a discount if market participants believe union bargaining power leads to a wealth transfer from shareholders to workers. If the offer price is held constant, then the offer premium will be higher for a larger discount. We, however, argue that the offer price is likely to adjust for the discount accordingly, because the discount reflects a lower merger gain in acquiring a unionized firm (see, e.g., Dessaint, Golubov, and Volpin 2017; John, Knyazeva, and Knyazeva 2015), which in turn leads to a lower offer price made to the target. As a result, discount in unionized firms' market value and the reduction in offer price are likely to offset each other, leaving our results less affected.

4. Extension beyond the Cutoff Point

The RDD tests performed above estimate the effect of unionization on firms with vote outcomes around the cutoff point. A natural extension is to investigate how unionization affects firms with vote outcomes far away from the cutoff. Establishing the treatment effect for these firms, however, is challenging, because the voting outcome is possibly endogenous and firm unobservable characteristics could drive both the voting outcome and the firms' takeover exposures. As a result, a simple comparison of takeover exposures between the two groups cannot provide a proper identification of the treatment effect for firms with votes that are far away from the cutoff. In this section, we extend our tests beyond the neighbor of cutoff point to explore the effect of organized labor in the full spectrum of our sample.

Angrist and Rokkanen (2015) develop an approach to address this challenge and extrapolate the local RDD estimates beyond the cutoff point. The approach's intuition is that in the regression discontinuity setting, unlike in an OLS regression, the variable that assigns observations to treatment is observable. As a result, one can test whether the assignment of treatment correlates with the dependent variables (i.e., takeover exposure and merger gains in our setting). If they are correlated, Angrist and Rokkanen (2015) propose to find a set of control variables to

achieve the conditional independence assumption (CIA): specifically, to make the dependent variables uncorrelated with the assignment variable conditional on the control variables one chooses. If CIA holds and the treatment status remains meaningful variation conditioning on the controls (i.e., the common support condition is satisfied), a causal estimate of the treatment effect for all firms can be obtained with standard matching estimators.

In our setting, the assignment variable is the fraction of votes in favor of unionization and the dependent variables are firms' takeover exposure and merger gains. To use the Angrist and Rokkanen (2015) approach, we first test the CIA and common support condition in our sample.

We regress the number of bids received, target announcement returns, offer premium, and bid duration on the fraction of votes in favor of unionization, respectively. We report the coefficients in Table A2 in the appendix. Even without controlling for any covariates, all coefficients are small and statistically insignificant, indicating little association between the dependent variables we examine and the assignment variable. We then include the control variables that are commonly used in the literature for a firm's takeover exposure and merger gains. Specifically, for a firm's takeover exposure, we control for the firm's size ($ln(MktCap)$), return on assets (ROA), Tobin's q (q), leverage, cash holdings *(Cash/assets)*, asset structure (*PPE/assets*), total institutional ownership as a fraction of shares outstanding (*Inst. ownership*), and a dummy variable indicating the existence of blockholders (*Block*). Besides these variables, we also control for deal-specific characteristics when we examine the target announcement returns, offer premium, and bid duration. These deal-specific characteristics include the acquirer's size (*Acq size*), transaction value relative to acquirer size (*TranVal*), a dummy variable indicating conglomeration deals (*Conglomeration*), and a dummy variable indicating all cash bids (*All cash*). The regression coefficients on votes are still insignificant with the control variables, which suggests that the CIA condition holds.

We then compute the propensity scores for treatment using a logit model, which regresses union election outcomes on the set of control variables we use in the CIA test.[11] The distributions of propensity scores for treatment and control groups have a substantial amount of overlap, suggesting that the common support condition holds.

Following Angrist and Rokkanen (2015) and Cunat, Gine, and Guadalupe (2015), we use the estimated propensity score to perform a propensity score weighted matching estimation. Specifically, we regress

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[11] The control variables for the takeover exposure (i.e., the number of bids received) and the merger gains (i.e., target announcement return, offer premium, and bid duration) are different, so we run logit models separately for them, with proper control variables included in each regression.

Table 4
Results beyond the cutoff point

	No. of bids received	Announcement return	Offer premium	Bid duration
Pass	−0.007	−0.177***	−0.109**	33.982
	(−0.31)	(−3.73)	(−2.20)	(1.37)
ROA	−0.024*	−0.491	−0.096	243.092
	(−1.70)	(−0.96)	(−0.25)	(1.02)
Leverage	−0.000	0.104	−0.084	126.691**
	(−0.43)	(0.81)	(−0.81)	(2.17)
q	−0.022**	−0.019	−0.038	−56.905*
	(−2.09)	(−0.51)	(−0.73)	(−1.92)
Cash/asset	0.379*	−0.159	−0.619*	321.325
	(1.75)	(−0.53)	(−1.79)	(1.39)
ln(MktCap)	0.008	0.019	−0.008	17.619
	(1.53)	(0.90)	(−0.39)	(1.24)
PPE/asset	0.053	−0.177	−0.297	−67.655
	(1.00)	(−1.03)	(−1.62)	(−1.05)
Block	0.044	−0.066	−0.174**	22.163
	(1.59)	(−0.75)	(−2.20)	(0.77)
Industry bid	0.044**			
	(2.08)			
Acq size		0.032	0.041*	−18.540*
		(1.20)	(1.71)	(−1.73)
TranVal		−0.030	−0.018	−39.643
		(−0.54)	(−0.30)	(−1.25)
All cash		−0.015	0.023	−34.044
		(−0.25)	(0.32)	(−1.16)
Conglomeration		−0.058	−0.112	20.502
		(−0.87)	(−1.50)	(1.02)
Cons	−0.053	−0.285	0.243	348.447*
	(−0.83)	(−0.54)	(0.48)	(1.91)
Decade FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Num. of obs	680	96	96	95
Adj. R-sq	.021	.249	.360	.365

This table reports the estimated effects of unionization on the full spectrum of firms. The estimation procedure follows Angrist and Rokkanen (2015). Pass is a dummy variable indicating whether union election passes, and other variables are standard controls for takeover exposure and merger gains used in the literature. Union election data are from the National Labor Relations Board (NLRB) over 1978 to 2004. Takeover data are from the SDC database over 1978 to 2008.
*$p < .1$; **$p < .05$; ***$p < .01$.

the takeover exposure and merger gains on a dummy variable that equals one if a union election passes and zero if it fails and the set of controls we use in the CIA test as well as the decade fixed effects and industry fixed effects. In the regressions, we weight each treated observation by $1/p_i$ and each control observation by $1/(1 − p_i)$, where p_i is the estimated propensity score for a given observation i.

We report the results in Table 4. The variable of interest is the coefficient estimate on the election passage dummy. In column one, we find that passing a union election reduces the average number of bids received by firms in our full sample (not just those that are close to the cutoff) by about 0.01 over the next 2 years. Columns 2 and 3 show that conditional on receiving a bid, passing a union election decreases the target CAR and offer premium by 17.7% and 10.9%, respectively, and both coefficient

estimates are statistically significant. The last column suggests that the bid duration increases slightly by about 34 calendar days if targets are unionized, but the difference is statistically insignificant.

The estimated average treatment effects for the full spectrum of firms are smaller than the local RDD estimates we establish in Section 3.2. The effect on takeover exposure drops by a large amount and the effect on merger gains captured by target announcement returns and offer premiums drops by about 50%. These results seem to suggest that unionization is more harmful for firms when elections are more contentious, probably because conflict between the organized labor and shareholders is more pronounced in these elections.

Using our estimates above, we perform a counterfactual analysis to explore what would have happened to a unionized firm's takeover exposure and merger gains had it was not unionized (i.e., the counterfactual). Section 2 of Online Appendix describes the details of constructing this counterfactual exercise. Figure 5 plots takeover exposure and merger gains in this counterfactual exercise, together with what we actually observe in the data. The dashed line represents the counterfactual scenario, and the solid line represents the true data. We focus on firms that pass union elections, so the comparison is made only for firms that fall to the right of the cutoff. Panel A suggests that firms that barely pass union elections would benefit the most if their union elections failed to pass. Unionization seems to have less effect on firms' takeover exposure when the votes are more favorable. Overall, the counterfactual analysis supports our main conclusion that the negative effects of unionization on firms' takeover exposure and merger gains are pervasive and are not limited to the firms with close-call elections, though the negative effects appear stronger for firms with close-call elections.

5. Possible Mechanisms

In this section, we explore possible underlying mechanisms through which labor unions affect a firm's takeover exposure and merger gains. We explore how cross-sectional variation in target union power and conflicts between target unions and potential acquirers alter our baseline RDD results. We carry out the analysis through four subsample tests: the right-to-work legislation and the state-level successor statutes create significant variation in union power across different states; horizontal and nonhorizontal mergers differ much in potential conflicts between target unions and acquirers in post-merger integration; and the size of target unions reflects both union power and potential conflicts between target employees and acquirer management.
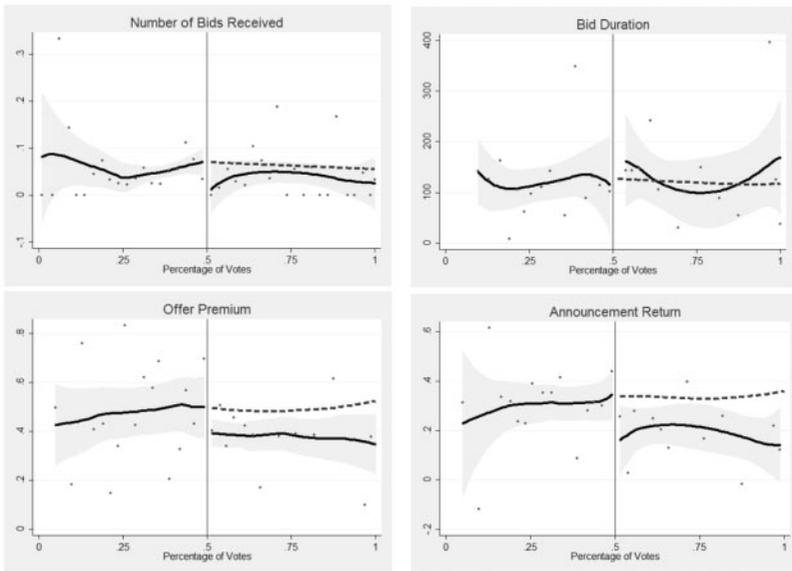
Figure 5
Counterfactual analysis
This figure presents the counterfactual analysis using the model estimates presented in Table 4. The dash lines depict the hypothetical values predicted by the model if a unionized firm didn't pass the union election. The solid lines represent the fitted local kernel estimates of data, with a 95% confidence interval around the fitted value. The x-axis is the percentage of votes favoring unionization. The dots depict different takeover exposure variables in each of 40 equally spaced bins (with a bin width of 2.5%). Union election results are from the National Labor Relations Board (NLRB) over 1978 to 2004. Takeover and stock valuation data are collected from SDC database and CRSP over the 1978 to 2008 time period.

5.1 Right-to-work legislation
As discussed in the introduction, states that have adopted right-to-work legislation cannot force employees to join unions or pay union dues as preconditions of employment. Therefore, in states with right-to-work legislation, unions have considerably less bargaining power than those in states without right-to-work legislation. One consequence of weaker union bargaining power is that a unionized workforce in a right-to-work state will have a smaller effect on a firm's takeover exposure than that in states without similar legislation.

We first collect information regarding right-to-work legislation in each state from the Department of Labor, following Matsa (2010) and John, Knyazeva, and Knyazeva (2014). We then classify observations into a weak union power subsample (i.e., union elections held in states with right-to-work legislation) or a strong union power subsample (i.e., union elections held in states without right-to-work legislation). We carry out the classification on a state-year panel basis. For example, Oklahoma enacts the right-to-work legislation in 2001, so we classify any union

Table 5
Right-to-work legislation

A. State with right-to-work legislation

	Average number of bids received		Announcement return	Offer premium	Bid duration (days)
	2 yr	3 yr			
Unionization	−0.038	0.023	−0.121	0.006	−73.0
	(−1.58)	(0.34)	(−0.98)	(0.03)	(−0.23)

B. State without right-to-work legislation

	Average number of bids received		Announcement return	Offer premium	Bid duration (days)
	2 yr	3 yr			
Unionization	−0.088**	−0.115***	−0.281**	−0.289*	94.6**
	(−2.45)	(−2.90)	(−1.98)	(−1.67)	(2.04)

This table presents nonparametric local linear RDD regression results using the optimal bandwidth proposed by Imbens and Kalyanaraman (2012) for firms whose union elections are held in states with right-to-work legislation (panel A) and those in states without right-to-work legislation (panel B). Results using a triangular kernel are reported. The dependent variables are the number of bids received within 2 or 3 years post-union election, offer premium, target firm announcement return, and bid duration. Union election data are from the National Labor Relations Board (NLRB) over 1978 to 2004. Takeover data are from the SDC database over 1978 to 2008.
*$p < .1$; **$p < .05$; ***$p < .01$.

elections occurring in Oklahoma before 2001 into the strong union power subsample and any union elections occurring in Oklahoma after 2001 into the weak union power subsample. We don't have the exact enactment date of right-to-work legislation. Hence, for any union elections occurring during the first (second) half of the enactment year, we classify them into the strong (weak) union power subsample. Our results are not sensitive to this assumption.

Table 5 reports the results for firms whose union elections are held in states with (panel A) and without (panel B) right-to-work legislation, using the nonparametric local linear RDD estimation.[12] In states with right-to-work legislation, we find that the coefficient estimates on *Unionization* exhibit mixed signs and are statistically insignificant across all regressions. On the contrary, as reported in panel B, winning a union election in states without right-to-work legislation (which affords unions more bargaining power) has a much larger economic and statistical effect on a firm's takeover exposure and merger gains. The results are consistent with the conjecture that unions in states with right-to-work legislation have weaker bargaining power and therefore have a smaller effect on a firm's exposure to takeovers.

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[12] States with right-to-work legislation as of 2004 (our union election sample end year) include Alabama, Arizona, Arkansas, Florida, Georgia, Idaho, Iowa, Kansas, Louisiana, Mississippi, Nebraska, Nevada, North Carolina, North Dakota, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, and Wyoming.

5.2 State successor statutes

Next, we explore how variation in state laws that regulate the successorship and transfer of collective bargaining agreement (CBA) in M&As alters our main results.

Labor unions and employers bargain through a collective bargaining process, in which they reach CBA to establish wages, hours, and conditions of employment. The National Labor Relations Act (NLRA) does not specifically address the continuation of employees' union representation or the continuation of unexpired CBA during corporate ownership transfer. The NLRB and Supreme Court have attempted to fill these gaps with federal common law. This body of law, known as the "Federal successor doctrine," defines the rights and obligations of employees when a business changes ownership. However, the Supreme Court has not provided a fixed definition of when a purchasing employer is a successor or a uniform declaration of what obligations follow a finding of successorship (Huggett 1997). Federal successor doctrine, therefore, offers limited protection to unionized employees in takeover targets (Sweeney 1991).

This gap grants states considerable autonomy in defining successorship and imposing obligations on successors, which governs target unions' bargaining power in M&As. We manually collect data on state-level successor statutes and identify states that have more union-friendly laws in regulating successor liability.[13] We expect target unions in these states to have higher bargaining power with acquirers. Section 3 of the Online Appendix explains related state-level successor statutes for each state and how these statutes favor unions in regulating the transfer of CBA liability during the change of corporate control.

Ideally, we want to check whether our results are stronger for firms in states with more union-friendly laws. However, only about 30% of our observations fall into this subsample of states. The sample becomes particularly small (i.e., 36 observations) when we examine offer premium, announcement returns, and bid duration, which makes the RDD test not feasible. Hence, we instead focus on firms in states with less union-friendly successor statutes and check whether our results become weaker.

Table 6 reports the results. The results indeed appear weaker. Specifically, though the probability of receiving bids do not change much, the magnitudes of both cumulative abnormal announcement returns and offer premium coefficient estimates drop more than 60% and become statistically insignificant.[14] The difference in bid duration between the two groups of targets also becomes insignificant. Overall,

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[13] These states include Illinois, Minnesota, Delaware, Massachusetts, Pennsylvania, Rhode Island, California, and Ohio.

[14] This similar takeover exposure might be due to acquirers' fixed costs associated with taking over unionized targets regardless of the power of target unions.

Table 6
State successor statutes

States with less union-friendly successor statutes

	Average number of bids received		Announcement return	Offer premium	Bid duration (days)
	2 yr	3 yr			
Unionization	−0.071***	−0.075*	−0.081	−0.112	−22.1
	(−2.52)	(−1.79)	(−1.02)	(−0.92)	(−0.60)

This table presents nonparametric local linear RDD regression results using the optimal bandwidth following Imbens and Kalyanaraman (2012) for the subsample of the states with less union-friendly successor statutes. Results using a triangular kernel are reported. The dependent variables are the number of bids received within 2 or 3 years post-union elections, offer premium, target firm announcement return, and bid duration. Union election data are from the National Labor Relations Board (NLRB) over 1978 to 2004. Takeover data are from the SDC database over 1978 to 2008.
*$p < .1$; **$p < .05$; ***$p < .01$.

the results seem to be consistent with our hypothesis that labor unions reduce the targets' bargaining power in mergers, especially for the targets whose union elections are held in states with more union-friendly successor statutes.

5.3 Horizontal mergers
Acquirers pursue takeovers for different reasons. Horizontal mergers are more likely to have a larger effect on target firm operation: they often involve more aggressive post-merger integration between the acquirer and target and lead to a greater efficiency improvement through target plant shutdown and large-scale layoffs. Meanwhile, if the acquirer and target operate in the same industry, they are more likely to have labor unions representing the same type of employees on both firms. Anecdotal evidence suggests that rival unions representing the same type of employees in the acquirer and target are more likely to fight for union representation in the combined firm or for other issues such as differences in contract seniority rules. Overall, target unions could create more conflicts and therefore appear more troublesome in horizontal mergers. Hence, we expect that the negative effect of labor unions is more pronounced for horizontal mergers.

We define a merger to be horizontal if the acquirer and the target belong to the same Fama-French 17-industry classifications.[15] Among 119 bids in our sample, 51 bids are classified as horizontal mergers and the remaining 68 bids are classified as nonhorizontal mergers.

Table 7 presents the nonparametric local linear RDD regression results for this test. For nonhorizontal mergers (panel A), the coefficient estimates on *Unionization* retain the same signs as those in our baseline results, but all of them decrease significantly in magnitudes and four

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[15] Results are robust to using other industry classification (e.g., based on a 3-digit SIC code or the Fama-French 48-industry classifications).

Table 7
Horizontal mergers

A. Nonhorizontal mergers

	Average number of bids received		Announcement return	Offer premium	Bid duration (days)
	2 yr	3 yr			
Unionization	−0.040**	−0.029	−0.087	−0.141	66.5
	(−2.05)	(−0.97)	(−0.87)	(−1.38)	(1.15)

B. Horizontal mergers

	Average number of bids received		Announcement return	Offer premium	Bid duration (days)
	2 yr	3 yr			
Unionization	−0.045***	−0.035*	−0.236***	−0.281***	81.7
	(−2.90)	(−1.69)	(−4.28)	(−3.27)	(0.77)

This table presents nonparametric local linear RDD regression results using the optimal bandwidth following Imbens and Kalyanaraman (2012) for nonhorizontal (panel A) and horizontal mergers (panel B). Horizontal mergers are defined as the mergers and acquisitions in which acquirers and targets are in the same industry, and nonhorizontal acquisitions are defined as the mergers and acquisitions in which acquirers and targets are in different industries. Results using a triangular kernel are reported. The dependent variables are the number of bids received within 2 or 3 years post-union election, offer premium, target firm announcement return, and bid duration. Union election data are from the National Labor Relations Board (NLRB) over 1978 to 2004. Takeover data are from the SDC database over 1978 to 2008.
*$p < .1$; **$p < .05$; ***$p < .01$.

out of five lose statistical significance. For instance, the differences in CARs and offer premiums between barely unionized targets and nonunionized targets drop by more than 60%, suggesting a significantly diminished effect of unionization in nonhorizontal mergers.

In contrast, our results become stronger for horizontal mergers (panel B). The difference in CARs and offer premiums between the two groups of targets both increases by 4 percentage points from our baseline results and now are -23.6% and -28.1%, respectively. Note that the difference in the average number of takeover bids received by the two groups of targets seems to shrink in the subsample of horizontal mergers, compared with that in our baseline results. However, this reduction is mechanical, because we classify all bids into two categories (horizontal vs. nonhorizontal). In other words, the probability for a firm to receive a certain type of bid is always lower than the probability of receiving a bid regardless of its type. After taking this into account, the difference in the number of takeover bids received by the two groups of targets is actually more pronounced in horizontal mergers.

5.4 Union size
Large unions in target firms could possess stronger bargaining power and cause more potential conflicts with acquirers in mergers, ceteris paribus.

Table 8
Union size

A. Firms with small union elections

	Average number of bids received		Announcement return	Offer premium	Bid duration (days)
	2 yr	3 yr			
Unionization	−0.066	−0.067	−0.048	0.062	86.64
	(−1.10)	(−1.45)	(−0.37)	(0.52)	(1.00)

B. Firms with large union elections

	Average number of bids received		Announcement return	Offer premium	Bid duration (days)
	2 yr	3 yr			
Unionization	−0.072	−0.098**	−0.269***	−0.287**	136.68***
	(−1.58)	(−2.04)	(−2.86)	(−2.46)	(2.68)

This table presents nonparametric local linear RDD regression results using the optimal bandwidth following Imbens and Kalyanaraman (2012) for firms with small (panel A) and large unions (panel B). Results using a triangular kernel are reported. The dependent variables are the number of bids received within 2 or 3 years post-union election, offer premium, target firm announcement return, and bid duration. Union election data are from the National Labor Relations Board (NLRB) over 1978 to 2004. Takeover data are from the SDC database over 1978 to 2008.
*$p < .1$; **$p < .05$; ***$p < .01$.

In this subsection, we check whether our baseline results are stronger for firms with large unions.

We first compute the relative size of a union by scaling its number of eligible employees by the total number of firm employees. A larger relative size then implies that a higher fraction of the firm's employees are covered by the union.

We then sort all union elections by their relative size. We take the bottom half as the small union election subsample and the top half as the large union election subsample.[16] Small unions cover on average 1.7% (median 1.4%) of firm employees while the large unions cover 30.2% (median 17.4%) of firm employees. Hence, the two subsamples exhibit substantial difference in union size.

Table 8 presents the nonparametric local linear RDD regression results for the small union (panel A) and large union subsamples (panel B). The results for the large union subsample are slightly stronger than our baseline results, and the results for the small union subsample are much weaker. Announcement returns and offer premiums of barely unionized targets do not seem to differ significantly from those of nonunionized targets in the small union subsample. Though unionized targets still receive fewer bids than nonunionized targets in the small union subsample,

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[16] Note that our sample screening criteria already excludes very small union elections whose participants are less than 100.

the difference between the two groups of targets becomes statistically insignificant.

We also perform a similar analysis based on the absolute size of unions, measured by the total number of eligible employees. The average (median) number of eligible employees in the small union subsample is 136 (133) and that in the large union subsample is 507 (338). We find consistent results that large unions, measured using the absolute size, also have more negative effects on firms' takeover exposure and merger gains.

6. Value Creation and Bidder Characteristics

Given our findings that labor unions deter takeover attempts and reduce the target's merge gains, a natural question is whether acquiring a unionized target affects the total value created in M&A transactions. To explore this question, following existing literature (see, e.g., Healy, Palepu, and Ruback 1992; Andrade, Mitchell, and Stafford 2001; Bhagat, Shleifer, and Vishny 2005; Harford 2005), we compute the combined firms' announcement returns and changes in firms' operating performance (ROA) and market valuation (Tobin's q) after deal completion. The combined firms' announcement returns reflect the market's assessments of total value creation in the proposed deals at the time of takeover announcements. Changes in firms' operating performance and market valuation capture the ex post deal quality in a longer horizon. Our analysis here focuses on the completed deals, because target unions do not affect acquirers' future performance or valuation if the proposed bids fail to complete. Our sample includes 91 completed deals.

We measure changes in combined firms' operating performance and market valuation as

$$\Delta ROA = \frac{1}{3}\left(\sum_{n=1}^{3} ROA_{c,t+n} - \sum_{n=1}^{3} ROA_{w,t-n}\right), \tag{3}$$

$$\Delta Q = \frac{1}{3}\left(\sum_{n=1}^{3} Q_{c,t+n} - \sum_{n=1}^{3} Q_{w,t-n}\right), \tag{4}$$

where $ROA_{c,t+n}$ is the combined firm's return-on-assets in the nth year after the merger, and $ROA_{w,t-n}$ is the weighted average of the acquirer's and target's return-on-assets in the nth year before the merger. Similar interpretation applies to changes in the firm's market-to-book ratio q.

We perform the nonparametric local linear RDD regression analysis on the combined firm's abnormal announcement returns, ΔROA, and ΔQ to compare deal quality for the completed mergers that involve barely unionized and nonunionized targets. The coefficient estimate on *Unionization* for the combined firm's abnormal announcement return is

0.023 with a *t*-statistic of 0.4. The coefficient estimates on *Unionization* for ΔROA and ΔQ are also statistically insignificant and economically small. These results suggest that the market does not seem to discount the combined firms' value in mergers involving unionized targets and, consistent with the market reactions, the combined firms do not exhibit poorer operating performance or lower valuation than those in mergers involving nonunionized targets.

The above findings that unionized targets suffer from lower merger gains while the total value created in the mergers seems to be unaffected suggest that acquirers of unionized targets benefit more from these deals. One plausible reason is that acquirers of unionized targets could be different from those of nonunionized targets in their experience in M&As and ability of dealing with unions. We explore this conjecture by examining acquirers' past experience in M&As, their bargaining power relative to targets in these past deals, and the performance of their past deals. Because the number of deals an acquirer makes in the past is highly skewed to the right in our sample, we define a dummy variable, *experienced acquirer*, that equals one if an acquirer conducts 5 or more deals in the past 15 years, and zero otherwise. We compute an acquirer's bargaining power relative to its target in each bid following Ahern (2012). Specifically, we measure an acquirer's relative bargaining power using the difference between the acquirer's dollar gains and the target's dollar gains in the deal, normalized by the sum of the acquirer's and target's premerger market values. Finally, we capture the performance of their past deals using changes in ROA and changes in *q* as defined in Equations (3) and (4).

Panel A of Table 9 reports the RDD regression results. Compared with acquirers of nonunionized targets, acquirers of unionized targets are 46.5% more likely to be an experienced bidder. They possess higher bargaining power, and their relative share of merger gains in past deals is on average 22 percentage points higher than those of nonunionized targets. They also appear to experience a larger improvement in postmerger performance (ROA) and valuation (*q*), suggesting more value creation in merger deals they complete in the past.

Next, we investigate both explicit and implicit union threats an acquirer faces before making its takeover bid. As shown in Section 1, severe union fights and contention on seniority rules are often fueled by conflicts between powerful rival unions in the acquirer and target firm. We therefore postulate that an acquirer with a lower level of threats from its own unions (if any) could possess some advantages in taking over a unionized target through reducing potential union conflicts. A low level of union threat in an acquiring firm may also reflect the acquirer's superior ability in dealing with its own employees, which could potentially help its negotiation with target employees.

Table 9
Who acquires unionized targets?

A. Acquirers' experiences in mergers and acquisitions

	Experienced acquirer	Acquirer's relative share	Change in ROA	Change in q
Unionization	0.465**	0.221**	0.079**	0.310
	(1.99)	(2.03)	(2.01)	(0.40)

B. Union threat to acquirers

	Implicit threat		Explicit threat	
	Number of past elections	Total election participants	Number of existing unions	Total eligible employees
Unionization	−1.231***	−211.7**	−0.166	−43.2*
	(−2.55)	(−1.98)	(−1.04)	(−1.67)

This table presents nonparametric local linear RDD regression results using the optimal bandwidth following Imbens and Kalyanaraman (2012). Results using a triangular kernel are reported. The dependent variables are the acquirers' experiences in past M&A deals and the potential threat of unions these acquirers face. We measure acquirers' M&A experiences by the number of M&A deals they have conducted before the current bids (experienced acquirers are the acquirers that conducted more than 5 deals in the past 15 years) and their performance in these past deals, including the relative share of total gains accrued to acquirers, changes in the combined firms' operating performance (ROA) and changes in the combined firms' market valuation (q) post-mergers in these deals. We measure the potential union threat to acquirers by the number of union elections the acquirers have experienced by the time of making the current bids, the total number of participants in these union elections, the number of successful elections that lead to existing unions in the acquiring firms, and the total eligible employees covered by these existing unions. Union election data are from the National Labor Relations Board (NLRB) over 1978 to 2004. Takeover data are from the SDC database over 1978 to 2008.
*$p < .1$; **$p < .05$; ***$p < .01$.

We measure explicit union threat by the number of existing unions an acquirer has and the total eligible employees covered by these unions. We measure implicit union threats by the total number of union elections an acquirer has in the past and the total number of participants in these union elections. The intuition for the implicit union threat measure is that, even if a union election fails in the past, employees still have the option to pursue union elections again in the future (DiNardo and Lee 2004), and this threat is expected to become more substantial and realistic if the acquirer takes over a unionized target.

Again, we run a nonparametric local linear RDD regression to test whether acquirers of unionized targets differ from those of nonunionized targets in terms of their explicit and implicit union threats. Panel B of Table 9 presents the results. Acquirers of unionized targets on average have 1.2 fewer union elections in the past, and the total number of participants in these union elections is smaller, too. Though acquirers of unionized targets do not have a significantly smaller number of unions in place, the total number of eligible employees covered by their existing unions is significantly lower for these bidders.

Overall, our analysis in this section shows that target unionization status does not seem to significantly affect the total value creation in the transactions. Acquirers of unionized target differ significantly from those of nonunionized targets: they are more experienced acquirers, possess higher bargaining power, conduct better merger deals in the past, and are subject to less explicit and implicit threat from their own unions. These characteristics seem to make these acquirers more capable of dealing with target unions and hence create value for the combined firms. The evidence further suggests that target unions deter potential bidders who are inexperienced in dealing with labor unions, reducing the pool of potential bidders and leaving only the most competent bidders acquiring unionized targets, which explains a lower offer premium and target announcement return we document in Section 3.

7. Conclusion

In this paper, we examine the effect of labor power on a firm's takeover exposure and merger gains. To establish causality, we use RDD that relies on "locally" exogenous variation in labor power generated by close-call union elections. Barely passing a union election leads to a significant reduction in a firm's probability of receiving a takeover bid. A barely unionized target firm also enjoys a lower announcement return, receives a lower offer premium, and experiences longer bid duration of bid negotiation. The documented negative effect is more pronounced when union elections are held in states without right-to-work legislation and in states with more union-friendly successor statues, when the mergers are horizontal, and when the unions in the target firms are large. Unionization does not seem to significantly affect the combined firm value. Acquirers of unionized targets appear to make this happen, because they have more experience in making merger deals in the past, exhibit better performance in these past deals, possess higher bargaining power relative to their past targets, and face less threat from their own unions.

Our paper provides new insights into the effects of labor power on the market for corporate control. In addition, given that labor power in the United States are regulated and can be altered by labor laws and regulations over time, our paper also provides important policy implications for policy makers when they alter union regulations or labor laws to affect the market of corporate control.

Appendix

Table A1
Anecdotes of union conflicts in mergers

Mergers	Year	Industry	Events
American Airlines – Reno Air	1999	Airlines	AA pilot union staged a 10-day sick-out to fight against the merger, leading to a cancellation of more than 6,000 flights.
Kookmin – Housing and Commercial	2000	Financial	Union workers (16,000) began a strike to protest the merger between the two largest Korean banks, which the unions fear will lead to big layoffs.
American Airlines – Trans World Airlines	2001	Airlines	TWA flight attendants were unsatisfied with AA even 6 years after the merger and picketed in 2006.
Gaumont – Pathe	2001	Entertainment	Union reps at Gaumont, unhappy with the merger, called for a national strike to be held on the first day of France's Fete du Cinema.
US Airways – America West	2005	Airlines	Rival unions fight for representing the 8,000 baggage handlers at the new US Airways. Former America West pilots fight over the seniority and the battle threatened to disrupt the following merger between US Airways and AA in 2012.
Delta – Northwest	2008	Airlines	Flight attendants from Delta and Northwest continued to work under separate contracts, each with their own work rules, and they cannot be scheduled to fly on the same airplanes, which negatively affected the integration.
Continental – United	2010	Airlines	In September 2011, more than 700 Continental and United Continental pilots took to Wall Street to protest slow contract negotiations and misinformation regarding merger integration. Even by 2013, it had yet to complete union negotiations. The significant differences in labor contracts between United and Continental, along with the majority of employees belonging to unions, caused the difficulty.
US Airways – American Airlines	2012	Airlines	Machinists union demanded US Airways negotiate a fair contract with IAM members before any merger talks. The union for American and US Airways pilots criticized management's contract offer and request more profit sharing. Dealing with the employees proved to be one of the most difficult steps in integrating the airlines. 24,000 flight attendants from the two carriers narrowly rejected a joint labor contract, which delayed the integration process.
Cooper Tire & Rubber – Apollo Tyres	2013	Manufacture	The deal faced opposition as workers at Cooper's U.S. and Chinese factories raised hurdles .The latest hurdle arose after a U.S. arbitrator, acting on a complaint filed by the Steelworkers union, ordered Cooper Tire to refrain from selling or transferring its Texarkana, Arkansas, and Findlay plants unless Apollo recognized the union as bargaining agent for the plants' workers and set employment terms that would be implemented at the closing of a merger.
LaFarge – Holcim	2014	Manufacture	International worker unions protested the transaction, claiming it would cost thousands of jobs. Members of Nigeria's Construction and Civil Engineering Senior Staff Association joined workers of Holcim and Lafarge in at least 22 countries, calling for the deal's suspension until job-security issues raised by unions are addressed. Jyrki Raina, general secretary

(continued)

Table A1
Continued

Mergers	Year	Industry	Events
			of IndustriALL Global Union, said, "Workers are demanding respect, and the first step would be for Holcim and Lafarge management to include workers and trade unions as the merger moves forward."
Philadelphia Gas Works – UIL	2014	Utility	Philadelphia Local 686 defeated the city administration and a well-funded private utility in a privatization effort of Philadelphia Gas Works.

This table presents anecdotal evidence regarding union conflicts and union protests in mergers and acquisitions. These examples are collected from news search through Factiva, LexisNexis, and Google which cover reports in different media sources.
No restrictions on country, territory, or industry are imposed.

Table A2
Test of conditional independence assumption

	Number of bids received				Target announcement return			
	Not pass		Pass		Not pass		Pass	
Vote	0.057	0.182	−0.011	0.123	−0.001	−0.116	−0.191	−0.260
	(0.070)	(0.140)	(0.050)	(0.129)	(0.264)	(0.261)	(0.174)	(0.326)
ROA		−0.020		0.011		−0.632		3.774
		(0.031)		(0.195)		(0.603)		(2.707)
Leverage		0.000		0.014		0.227		0.036
		(0.005)		(0.033)		(0.143)		(0.415)
q		−0.028*		−0.000		−0.057		0.129
		(0.017)		(0.019)		(0.056)		(0.090)
Cash/asset		0.157		0.280		−0.275		−1.608
		(0.163)		(0.233)		(0.326)		(1.044)
ln(MktCap)		0.002		0.001		0.032		−0.023
		(0.008)		(0.011)		(0.021)		(0.098)
PPE/asset		−0.025		−0.007		−0.720***		0.030
		(0.075)		(0.108)		(0.178)		(0.279)
Inst. ownership		−0.041		0.053		−0.106		−0.065
		(0.079)		(0.124)		(0.145)		(0.168)
Block		0.035		0.057		0.029		0.000
		(0.045)		(0.069)		(0.079)		(0.161)
Industry bid		0.024		0.077				
		(0.065)		(0.106)				
Acq size						0.045		0.062
						(0.029)		(0.078)
TranVal						−0.103**		0.122
						(0.051)		(0.194)
All cash						−0.017		0.124
						(0.058)		(0.107)
Conglomeration						−0.115*		−0.047
						(0.062)		(0.121)
Cons.	0.028	0.029	0.044	−0.162	0.311***	−0.341	0.336**	−0.863
	(0.024)	(0.097)	(0.036)	(0.161)	(0.091)	(0.568)	(0.129)	(1.192)

	Offer premium				Bid duration			
	Not pass		Pass		Not pass		Pass	
Vote	0.223	−0.047	−0.183	−0.288	75.5	−195.7	110.4	−738.7
	(0.299)	(0.363)	(0.203)	(0.317)	(166.5)	(176.6)	(138.5)	(554.5)
ROA		−0.161		0.843		−34.3		−884.3
		(0.864)		(1.246)		(389.9)		(1140.2)
Leverage		0.179		−0.487		76.1		314.8
		(0.208)		(0.426)		(88.5)		(311.5)
q		−0.102		−0.039		−31.8		120.8
		(0.084)		(0.102)		(37.9)		(86.9)
Cash/asset		−0.452		−0.900*		300.7		724.7**
		(0.477)		(0.426)		(208.8)		(293.2)
ln(MktCap)		0.003		−0.031		29.0**		119.7
		(0.031)		(0.088)		(13.8)		(86.5)
PPE/asset		−0.771***		−0.426		391.8***		164.4
		(0.240)		(0.298)		(105.1)		(243.5)
Inst. ownership		−0.008		−0.163		−189.2**		218.6
		(0.202)		(0.281)		(89.4)		(209.0)
Block		−0.102		0.108		80.4		−423.9
		(0.118)		(0.177)		(50.1)		(274.6)
Acq size		0.071		0.053		−16.8		−103.3
		(0.042)		(0.087)		(18.5)		(82.1)
TranVal		−0.072		0.059		−19.8		124.6
		(0.071)		(0.234)		(33.6)		(150.3)
All cash		−0.014		0.198		−2.89		59.7
		(0.083)		(0.128)		(36.0)		(101.6)
Conglomeration		−0.138		−0.180		−5.50		124.3
		(0.085)		(0.131)		(37.9)		(113.9)
Cons.	0.408***	−0.417	0.493***	0.099	106.8*	249.9	58.1	1,840.2
	(0.101)	(0.823)	(0.152)	(1.730)	(57.1)	(361.7)	(103.9)	(1,467.4)

*$p < .1$; **$p < .05$; ***$p < .01$.

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