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Union Concessions following Asset Sales and Takeovers

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Abstract

We document that the likelihood of asset sales increases with union presence and union wages. Furthermore, acquiring firms gain significant concessions from the incumbent union following asset sales. Finally, the anticipation of union concessions helps explain the excess stock returns around asset sale announcements. We find no comparable effects for takeovers. We conclude that asset sales, but not takeovers, are partially motivated by the potential to extract concessions from unions.

I. Introduction

The courts, arbitrators, and the National Labor Relations Board (NLRB) have developed the rights and obligations of parties to transactions that alter ownership of businesses with unionized workers (Wheeler and Murray (1991)). In takeovers, union-related obligations typically survive the transfer of ownership, and the surviving firm must recognize and bargain with the union and abide by the terms of the collective agreement as if no change had occurred. Conversely, in asset sales, the buyer is generally not required to assume existing collective agreements and might even be exempt from recognizing the unions.

Anecdotal evidence suggests that asset sales play an important role in gaining concessions from unions. For instance, Hostess Brands Inc. closed its factories in Nov. 2012, after failing to reach an agreement with its striking bakers' union on concessions. While Hostess aimed to sell Twinkies and other snack cake brands, the Teamsters, which was the company's largest union, objected to the sale, arguing that

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> The … sale process has only insured that the brands may live on—none of the buyers have made any comments to employ former Hostess workers let alone honor the terms of conditions of their employment with Hostess—in fact they specifically stipulated that none of the obligations carry forward as part of their bids (Choi (2013)).

Twinkies were sold to a pair of investment firms and returned to store shelves on July 15, 2013. However, under the new ownership, Hostess Brands did not employ any unionized workers, and only 20%–25% of the company's former jobs were brought back. Those who did get their jobs back faced a 33% wage cut.

A more recent example is that of newspaper group MaineToday Media (MTM). In Apr. 2015, Maine Values LLC announced the sale of MTM to MTM Acquisitions Inc. MTM's chief executive officer (CEO), Lisa DeSisto, stated, "In an asset sale, like this one, existing (labor) contracts aren't part of the deal." News of MTM's first round of layoffs came 1 month later. A top union official representing more than half of MTM's nearly 400 employees expressed concerns that more layoffs could be on the way: "The sale was structured in a way so that the buyer does not recognize the contract, and the buyer is imposing conditions that would reduce the cost of outsourcing people's jobs." A common feature of these examples is that asset sales, and not takeovers, were used to obtain concessions from unions.

Our primary conjecture is that firms sell assets to extract concessions from powerful (and contentious) unions, where union power is indicated by high union wages, incidence of strikes, and the absence of right-to-work (RTW) laws. Our secondary conjecture is that managers seeking to allay powerful unions are more likely to sell some assets than the whole firm as part of a takeover because the latter implies that union-related obligations survive the transfer of ownership. That is, whereas asset sales quickly and effectively loosen the union grip, the acquirer in takeovers must wait until contract expiration to negotiate concessions. Furthermore, any negotiation upon contract expiration comes with uncertainty and the possibility of strike. Tian and Wang (2016) extend this argument, suggesting that unions stand in the way of realizing merger synergies, thereby deterring takeovers.

First, we examine how union presence and union wages affect asset sales and takeovers. The results from linear probability regressions suggest that both union presence and high union wages increase the probability of asset sales, while neither variable affects the probability of takeovers. Furthermore, a regression discontinuity design (RDD) shows that union elections increase the probability of asset sales and actually reduce the probability of takeovers. We also present complementary evidence that contentious labor negotiations, defined as those that result in strikes, spur asset sales and deter takeovers.

To gauge the magnitude of any union concessions, we examine annual real wage growth following takeovers and asset sales. We find that takeovers have no detectable effect on union wage growth, whereas union wage growth following asset sales declines significantly, both statistically and economically. The parameter estimates establish the basis for calculating union employees' wealth concessions

associated with asset sales. Based on the divergence of wages from the level that would have prevailed without the asset sale, we estimate that during the 3 years following the asset sale, the seller's union employees lost almost $20 million on average, representing 35% of the transaction value.

We further examine whether union concessions explain the abnormal stock returns around announcements of asset sales and takeovers. To do so, we develop several measures designed to capture the economic importance of potential union concessions. These measures are based on the unionization rate, the union wage premium, and the relative transaction value. Our results show that the potential for union concessions explains a significant portion of the announcement returns around asset sales for both the buyer and seller, but there is no comparable effect for takeovers.

Prior studies indicate that RTW laws, which prohibit unions from making membership or payment of union dues a condition of employment, weaken union bargaining power (Ellwood and Fine (1987), Holmes (1998), Klasa, Maxwell, and Ortiz-Molina (2009), and Matsa (2010)). We find that our earlier results are primarily attributable to asset sales in which the selling firms are located in states without RTW laws. In particular, union wage premiums increase the likelihood of asset sales in states without RTW laws but not in states with RTW laws. Furthermore, unionization only affects asset sale announcement returns when the selling firms are located in states without RTW laws. These results corroborate our conclusion that firms use asset sales to extract concessions from powerful labor unions.

In our final analysis, we explore further why the sellers of the assets apparently could not extract concessions themselves. Obviously, the acquirers of the assets have an advantage in not having to recognize the past contracts, and a decision not to recognize the contracts sends a signal that the contractual terms are too generous. But we also report that acquirers of assets from unionized targets are more likely to be in RTW states and have low unionization rates that show no sign of increasing after the asset transfers. Furthermore, any future union contracts exhibit greater concession when the acquirers are in RTW states. Thus, there is no evidence that acquirers of assets from unionized targets are particularly skilled or experienced in dealing with unions but rather that they exploit their environment's greater hostility toward unions.

Our study contributes to the literature on the relation between labor and takeovers. Shleifer and Summers (1988) argue that rent expropriation from workers is a source of value in hostile takeovers. Indeed, Davis et al. (2014) find that private equity buyouts lead to job losses at establishments operated by target firms as of the buyout year, and Li (2013) finds that takeovers lead to cuts in both employment and wages. Other studies examine the role of unions in takeovers. Rosett (1990) reports statistically weak evidence that takeovers affect union wage growth. However, Li (2012) reports wage and employee declines in targets that are more pronounced in heavily unionized industries, but, curiously, this is limited to targets in RTW states, where unions are weaker. We argue that, because union-related obligations survive the transfer of ownership following a takeover, it is hard for acquiring firms to extract meaningful concessions from strong incumbent unions.

We further contribute to the literature that investigates the determinants and sources of gains from asset sales. Some earlier studies on asset sales have emphasized the efficiency resulting from reallocation of assets to higher valued buyers as the primary determinant of gains in selloffs (Alexander, Benson, and Kampmeyer (1984), Hite, Owers, and Rogers (1987), and Maksimovic and Phillips (2001)). Chemmanur, Krishnan, and Nandy (2014) show that the efficiency improvement following spin-offs (which are arguably related to asset sales) arises from decreases in both employment and total wages. Our study is generally consistent with this literature but points to high union wages as the particular source of efficiency gains.

Finally, we contribute to the literature that examines the effect of labor laws on corporate restructuring, including Atanassov and Kim (2009), John, Knyazeva, and Knyazeva (2015), Levine, Lin, and Shen (2015), and Dessaint, Golubov, and Volpin (2017). Atanassov and Kim (2009) examine management turnover, layoffs, and asset sales in firms at the onset of declining performance. They report that firms in countries with strong investor protection are more likely to lay off workers and replace top management. Moreover, asset sales in countries with strong investor protection are followed by superior operating performance, suggesting that they create value. Conversely, in countries with weak investor protection, highly protective union laws induce value-destroying asset sales, which the authors attribute to alliances between managers and unions aimed at averting dismissals and wage cuts. Our study focuses on the United States, which Atanassov and Kim (2009) consider to have moderately strong investor protection. Thus, alliances between managers and unions designed to promote their interests at the expense of shareholders should largely be absent and/or ineffective in our setting. Indeed, consistent with Atanassov and Kim's results for strong investor countries, the asset sales in our sample create value for shareholders. Furthermore, we find that protective union laws intensify the effect that union presence and union wages have on both the frequency and wealth creation of asset sales.

John et al. (2015) argue that strong labor rights intensify the conflict between employees and shareholders, resulting in takeovers that are more labor-friendly and generate lower gains for shareholders. They report that takeovers by acquirers in states with weak labor rights are associated with higher announcement returns. They also report evidence that acquirers in states with weak labor rights pursue targets with weak labor rights and low labor costs and undertake more significant workforce reductions. These results suggest that the gains in takeovers partially come from suppressing the target workforce while it is still weak. In contrast, Levine et al. (2015) provide international evidence that acquirers from countries with strong labor regulations tend to acquire targets from countries with weak labor regulations, and such acquisitions are associated with higher announcement returns. Our results complement the U.S. evidence in John et al. (2015) by showing that if the target workforce has already grown strong, only asset sales can reverse the process.

Lastly, Dessaint et al. (2017) use variations in employment protection across countries and time to study the effect of employment protection on takeovers. They report that the passage of labor regulation that enhances employment protection reduces takeover activity, synergy gains, and post-takeover layoffs,

suggesting that workforce restructuring is a source of synergies in the absence of employment protection. Similarly, our RDD results, as well as those of Tian and Wang (2016), show that unionization deters takeovers. The effect on asset sales, however, is the opposite.

II. Motivation and Related Literature

A. The Law on Successorship following Mergers and Acquisitions

The law of successorship determines whether or which obligations of a predecessor employer are imposed upon a successor or purchaser. The form and nature of the transaction that alters corporate ownership determines, to some extent, the rights and obligations of the purchaser or succeeding owner of the corporation (Wheeler and Murray (1991)).

1. Takeovers

In cases where there is a sale or transfer of stock and no change in corporate form, the continuing employer is obliged to adopt the substantive provisions of the collective bargaining agreement and to recognize and bargain with the incumbent union. For example, in *EPE, Inc. v NLRB* (845 F.2d 483, 4th Cir. 1988), the court enforced the NLRB's order holding that EPE remained obligated to abide by the terms of its collective bargaining agreement with the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) after 100% of EPE's stock was purchased by Echlin Inc.

2. Asset Sales

In an asset sale, the buyer normally has no obligation to honor the seller's collective bargaining agreement or recognize the union unless it is deemed a "successor employer" under the National Labor Relations Act (NLRA).[1] The leading case that sets forth the legal requirements of a successor to honor the substantive provisions of a collective bargaining agreement between the acquired firm and its workers is the Supreme Court case *NLRB. v. Burns International Security Services, Inc*. (406 U.S. 272, 1972). Lockheed Aircraft Company contracted for security at one of its plants with Wackenhut Corporation. Wackenhut had entered into a collective bargaining agreement with the United Plant Workers, a union certified by the NLRB. When Wackenhut's service contract expired, Lockheed hired a new security firm, Burns Security. Burns retained 27 of the 42 original Wackenhut employees but refused to either honor the terms of the previous agreement with Wackenhut or bargain with the union. The NLRB found that Burns had violated the National Labor Relations Act by refusing to negotiate with the union and refusing to honor the collective bargaining agreement. The case reached the Supreme Court, where Justice Byron White, writing for the majority, ruled that Burns was obligated to negotiate with the union, but that "it does not

[1]However, if the buyer is deemed to be the "alter ego" of the predecessor, the purchaser is bound by the substantive terms of the collective bargaining agreement between the predecessor employer and the union. Alter ego status is found where, subsequent to a change in corporate form, substantially identical management, business purpose, operations, equipment, customers, supervision, and ownership remain.

follow…from Burns' duty to bargain that it was bound to observe the substantive terms of the collective bargaining contract the union had negotiated with Wackenhut and to which Burns had in no way agreed" (*NLRB v. Burns*, 406 U.S. 281–82).

While *NLRB v. Burns* did not involve an asset sale, it is the guiding case in this area. An acquiring firm must bargain with the union following the sale if it is found to be a "successor employer," but it is not necessarily bound by the terms of any previous agreements. Thus, following the transaction, the acquirer is free to attempt to extract whatever concessions it can, but the union is under no greater obligation to make concessions to the acquiring management than it was to the original management.

There are two circumstances in which buyers are exempt from recognizing the unions. In particular, a buyer has no obligation to bargain with the incumbent union if i) the buyer hires less than a majority of the seller's workers or ii) the buyer makes substantial changes to the seller's business. For example, Blue and White Cabs in Minneapolis and Chenault Trucking Company in Indianapolis made enough changes to be exempt from recognizing the unions or their contracts. At a minimum, in cases where the buyer is found to be a "successor employer," asset sales would enable the buyer to set its own initial terms and conditions of employment and then bargain with the union for a more favorable collective bargaining agreement.

B. Labor and Corporate Control

One set of studies examines the broad effect of takeovers on labor. Li (2013) finds that takeovers lead to cuts in both employment and wages. The wage cuts are associated with greater value creation, while the employment cuts are actually associated with *less* value creation. Davis et al. (2014) find that private equity buyouts lead to job losses at establishments operated by target firms as of the buyout year, though the target firms also create new jobs in new establishments.

Another set of studies examines the role of unions in takeovers. Rosett (1990) reports that takeovers do not have a statistically significant effect on union wage growth when controlling for industry and year fixed effects. Becker (1995) reports that announcement returns are larger for unionized targets than for nonunionized targets, but he does not examine the effect of takeovers on labor variables. Li (2012) reports that the employment and wage cuts in targets are greater in heavily unionized industries. But, curiously, this result is limited to RTW states; in non-RTW states, where unions are stronger, unionization is unrelated to employment and wage cuts. Chen, Kacperczyk, and Ortiz-Molina (2011) find that labor unions increase firms' cost of equity by constraining firms' operating flexibility.

More recently, John et al. (2015) exploit variations in labor rights across states to explore whether strong labor rights curb the value creation in acquisitions, and they document that acquirers with strong labor rights experience lower announcement returns. Tian and Wang (2016) show that unionized U.S. firms are less likely to attract bids and receive lower premiums and exhibit longer bid durations when targeted, but they find no effects on combined firm gains (synergies). Levine et al. (2015) show that acquirers from countries with strong labor regulations are more likely to acquire targets from countries with weak labor regulations,

and such acquisitions are associated with higher announcement returns. Dessaint et al. (2017) find that, in a global setting, increases in employment protection reduce takeover activity, combined firm gains, takeover premiums, and post-merger layoffs. Lastly, Ahmad and Lambert (2017) document a positive relation between collective bargaining and takeover activity at both industry and country levels.[2]

C. Sources of Gains from Asset Sales

Past studies have proposed three hypotheses for the source of gains from asset sales. The efficiency hypothesis, which is based on Hite and Owers (1983) and Rosenfeld (1984), proposes that the gains stem from redeployment of assets to higher-valued users. The financing hypothesis, which is based on Lang, Poulsen, and Stulz (1995), suggests that asset sales provide an expedient financing mechanism when access to external capital is limited. That is, asset sales relax external financial constraints and allow firms to undertake valuable investments that would otherwise be forgone. The corporate focus hypothesis postulates that divestitures that increase focus induce improvements in investment policy. For example, Scharfstein and Stein (2000) argue that when firms comprise several divisions, divisions with poor prospects engage in rent-seeking behavior. Thus, divestitures of divisions that engage in rent seeking, such as those with low growth opportunities, should be associated with the greatest improvements in investment policy.

D. Determinants of Asset Sales

Ofek (1993) reports that higher leverage spurs asset sales among underperforming firms, consistent with Jensen's (1989) argument that highly leveraged firms respond more quickly to distress. Other papers provide evidence that restructurings (including asset sales) are linked to various events that reduce managerial control, including takeover threats (Dann and DeAngelo (1988), Bhagat, Shleifer, and Vishny (1990)), managerial turnover (Denis and Denis (1995), Weisbach (1995)), and shareholder activism (Del Guercio and Hawkins (1999)).

Atanassov and Kim (2009) examine restructuring decisions among firms at the onset of declining performance. They find that strong investor protection induces management turnover and layoffs. Further, asset sales are most common when investor protection is very strong, in which case subsequent performance improves, or very weak, in which case subsequent performance declines. The latter set of asset sales is spurred by strong union laws, prompting the authors to conclude that unions endorse such asset sales to prevent layoffs.

[2]We are reluctant to compare our results with those of Ahmad and Lambert (2017) for several reasons. First, unlike us, it appears that Ahmad and Lambert do not exclude asset sales from their sample of takeovers. Second, Ahmad and Lambert depend on country-level union variables, which could capture macroeconomic, institutional, and legal differences (e.g., differences in the law of successorship across countries). In contrast, we only include observations from one country and use the specific unionization level of each target. Third, Ahmad and Lambert try to mitigate endogeneity with the use of various control variables, whereas we employ an RDD. Fourth, the protection of employees generally has higher priority in Europe than in the United States.

III. Sample

A. Data Sources

Our sample includes asset sales and takeovers. In an asset sale, the buyer only acquires selected assets from the seller, and the seller continues to exist afterward. The buyer might also assume some liabilities in the transaction. In a takeover, the buyer assumes control of the target firm, often by purchasing a majority stake. Upon completion, the acquirer becomes responsible for all of the target's operations, holdings, and liabilities.

We extract the sample of asset sales and takeovers from Thomson Reuters Securities Data Company (SDC) Platinum Mergers and Acquisitions database, which identifies transactions based on several sources, including U.S. Securities and Exchange Commission (SEC) filings, press releases, and newswires. To facilitate the identification of asset sales versus takeovers, we rely on the SDC variable FORM_OF_THE_DEAL, which offers 10 codes describing the specific form of the related mergers and acquisitions (M&A) transaction. Following Warusawitharana (2008) and Ray and Warusawitharana (2009), we identify asset sales as transactions with codes AA (acquisition of assets) and AC (acquisition of certain assets). The code AA refers to deals in which the assets of a company, subsidiary, division, or branch are disposed, while the code AC refers to deals in which sources state that "certain assets" of a company, subsidiary, or division are disposed.[3] We identify takeovers as transactions with codes M (merger) and A (acquisition), both of which involve 100% of the target company, and AM (acquisition of majority interest), in which the acquirer must have held less than 50% and be seeking to acquire 50% or more, but less than 100% of the target company's stock. Based on an analysis of news articles for a subsample of transactions reported by the SDC, Ray and Warusawitharana (2009) find that the SDC classification scheme works well.[4]

We identify transactions between Jan. 1987 and Dec. 2009 that meet the following criteria: i) the buyer and seller are both U.S. firms, ii) the reported value of the sale transaction is at least 10% of the market value of equity of the acquiring firm 1 year prior to the sale, and iii) the transaction is completed. This yields a sample of 5,286 asset sales and 5,549 takeovers.[5]

The data on contract settlements come from the BNA Labor Plus database maintained by the Bureau of National Affairs (BNA). Under the National Labor Relation Act, firms with labor union contracts are required to file notices of contract expiration with the Federal Mediation and Conciliation Service (FMCS) to allow the FMCS to prepare for potential strike mediation.[6] The BNA has

[3]The remaining forms of SDC transactions include AP (acquisition of partial interest), AR (acquisition of remaining interest), R (recapitalization), B (buyback), and EO (exchange offer).

[4]For a random subsample of 100 of the asset sales in our sample, we verify based on 10-K filings and news announcement that they were indeed asset sales, and not, for example, sales of shares in a subsidiary.

[5]Of the takeover targets, 78 are private, and the results are similar if we exclude those.

[6]The BNA Labor Plus database covers both contentious and noncontentious negotiations. According to industry insiders with whom we have communicated, only a small minority (<5%) of negotiations are not filed when a new contract is agreed upon more than 30 days before the previous contract expires.

collected data on these contract negotiations since 1987, and it provides information on wage growth, old or new average rates of pay, numbers of employees covered, and benefit changes negotiated under collective bargaining agreements, along with basic information about the contracts such as location, industry, employer, union, and contract duration.

Following Lee and Mas (2012), we match companies in the BNA database to companies in the Center for Research in Security Prices (CRSP) data file. There are 14,759 contract settlements in the BNA database for the 1987–2009 period. When matching, we looked for similarities in the company name listed in the BNA database to names that are present in the CRSP files. Because these data sets use different abbreviations, we manually confirm each match based on location, industry classification and online resources.

We ultimately match 4,603 contract settlements across 516 companies. Figure 1 shows that both the number of companies and the number of contracts signed by these companies exhibit a decreasing temporal trend. For example, 246 companies signed 362 contracts in 1987, while 93 companies settled 149 contracts in 2009. Interestingly, the average number of contracts signed by each company stays constant over time. Taken together, the result suggests a decline in union power, with fewer companies left to deal with unions. But there is no apparent change for the companies that still negotiate with their unions. There is also anecdotal evidence that unions retain their stronghold in certain industries. For example, in Apr. 2014, JetBlue Airways pilots voted overwhelmingly to be represented by the Air Line Pilots Association (ALPA), the largest pilots' union. As a result, ALPA represents more than 52,000 pilots from 30 U.S. and Canadian airlines.

FIGURE 1
The Temporal Trend in the Contract Sample

Figure 1 depicts the number of contracts and the number of firms that signed a contract by the settlement year. The sample has 4,603 contracts from the BNA Labor Plus database between Jan. 1987 and Dec. 2009.

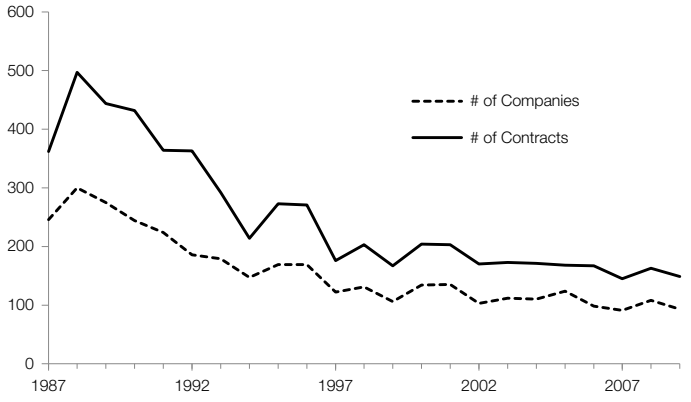
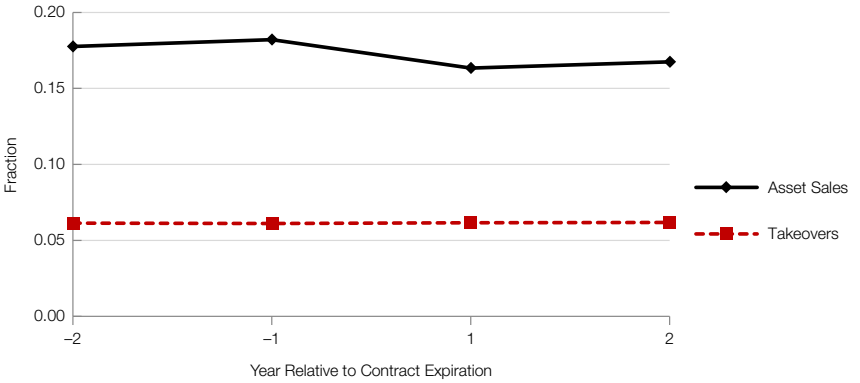


Figure 2 shows the fraction of observations with asset sales and takeovers during the years around contract expirations. The fraction of takeovers hovers around 6%, with no visible trend. The fraction of asset sales hovers around 17%, with a modest peak of 18.2% in the year before the contract expirations and a

FIGURE 2
Fraction of Asset Sales and Takeovers around Contract Expirations

Figure 2 shows the fraction of observations with asset sales and takeovers in the years relative to union contract expirations. Year −2 refers to days [−730,−365] relative to the contract expirations, year −1 refers to days [−365,0], year +1 refers to days [0,365], and year +2 refers to days [365,730]. The contract settlement sample contains 4,603 contracts from the BNA Labor Plus database between Jan. 1987 and Dec. 2009.



trough of 16.3% in the year after the contract expirations (the p-value for the difference of 1.9% is 0.03). Thus, there is some evidence that firms sell relatively more assets in the year before contract expirations, perhaps in an attempt to dodge the possibility of a strike. (We return to the role of strikes later.)

The U.S. Department of Labor's Web site on state RTW laws indicates whether the state in which a firm has its primary business has RTW laws. We collect this information on an annual basis over our sample period. RTW laws are currently enforced in 28 states and are allowed under provisions of the Taft–Hartley Act, which prohibits unions from making membership or payment of union dues or fees a condition of employment, either before or after an employee is hired. To determine the state in which a target firm is located, we use the SDC variable "TARGET_STATE," which the SDC defines as the state of the target's primary business or division at the time of the transaction. On this basis, we create an indicator for whether firms are subject to RTW laws. Because firms often operate in multiple states, our indicator contains noise that is likely to bias against finding any effect of RTW laws.

Union election data are collected from the NLRB database, which contains establishment-level information on union elections, including firm name, location, Standard Industrial Classification (SIC) code, petition type, election date, number of participants, and voting outcomes. We merge the NLRB database with our main sample using company names. Following Lee and Mas (2012) and Huang, Jiang, Lie, and Que (2017), we eliminate observations if the election outcome is not available or if fewer than 100 employees participated in the election.

Information on labor strikes is obtained from the BNA Labor Plus database and the U.S. Bureau of Labor Statistics (BLS). These databases are based on published sources, including BNA publications, newspaper, union publications, and government reports. They provide information on employer name, beginning and

ending dates of strikes, and the number of idling workers. Following the literature, we focus on major strikes with at least 100 striking employees. Merging work stoppages with our main sample based on employer name yields 157 strike events during our sample period.

B. Descriptive Statistics

Table 1 presents summary statistics for the asset sales, takeovers, and labor contracts in our sample. Acquirers of assets tend to be modestly larger than acquirers in takeovers, with average book values of assets of $10.5 billion and $8.7 billion (in 2009 dollars), respectively. In contrast, targets of takeovers tend to be considerably smaller than sellers of assets, with average book values of assets of $3.8 billion and $6.7 billion (in 2009 dollars), respectively. Furthermore, the average transaction value for takeovers of $308 million (in 2009 dollars) is roughly 50% larger than that of $209 million for asset sales (in 2009 dollars).

The average (median) duration for the labor contracts is 3.5 (3.0) years. In later analysis, we examine changes in wage growth arising from contract renegotiations during the 3 years after asset sales and takeovers because this should capture the bulk of renegotiations of contracts that were last settled during the years leading up to the transactions. The average (median) number of workers covered in a contract is 3,737 (857), and the average (median) wage growth rate associated with labor contracts is 2.7% (2.8%).

TABLE 1
Summary Statistics

Panels A and B of Table 1 present summary statistics for the sample comprising 5,286 asset sales and 5,549 takeovers included in the SDC Platinum Mergers and Acquisitions (SDC) database between 1987 and 2009. The transactions meet the following criteria: i) the buyer and seller are both domestic firms, ii) the reported value of the sale transaction is at least 10% of the market value of equity of the acquiring firm 1 year prior to the sale, and iii) the transaction is completed. TRANSACTION_VALUE is the reported value of the transaction from SDC, in 2009 dollars. RTV is the reported value of the transaction divided by the market value of equity of the acquiring firm 1 year prior to the sale. ACQUIRER_SIZE (TARGET_SIZE) is the acquirer (target) book value of total assets in the fiscal year before the sale. Panel C presents summary statistics for the main variables in the contract settlement sample, which contains 4,603 contracts from the BNA Labor Plus database between Jan. 1987 and Dec. 2009. DURATION is the number of years during which a labor contract is effective. NO_WORKERS_COVERED is the number of unionized employees covered by a labor contract. WAGE_GROWTH is the average annual wage growth rate over a labor contract in percent. WAGE_RATE is the average hourly wage before the start of the labor contract in 2009 constant dollars. UNION_WAGE_PREMIUM is the hourly wage difference between unionized employees and average workers in the same industry (defined by 2-digit Standard Industrial Classification (SIC) codes) scaled by the average hourly industry wage in the previous fiscal year.

	No. of Obs.	Mean	Median	Std. Dev.
Panel A. Asset Sales				
TRANSACTION_VALUE	5,286	209	51	618
RTV	5,286	0.52	0.24	1.58
ACQUIRER_SIZE	5,286	10,517	1,092	924
TARGET_SIZE	5,286	6,704	834	401
Panel B. Takeovers				
TRANSACTION_VALUE	5,549	308	103	392
RTV	5,549	0.45	0.31	0.34
ACQUIRER_SIZE	5,549	8,730	796	828
TARGET_SIZE	5,549	3,842	334	780
Panel C. Contract Settlements				
DURATION	4,603	3.46	3.00	1.22
NO_WORKERS_COVERED	4,603	3,737	857	162
WAGE_GROWTH	4,603	2.68	2.80	1.80
WAGE_RATE	1,225	21.77	21.97	7.09
UNION_WAGE_PREMIUM	1,225	0.21	0.16	0.27

IV. Empirical Results

A. Union Concessions and the Likelihood of Asset Sales and Takeovers

As noted earlier, the form of the transaction (i.e., takeover or asset sale) affects the rights and obligations of the acquiring firm. In a takeover, the continuing employer is obliged to adopt the substantive provisions of the collective bargaining agreement and to recognize and bargain with the incumbent union. In contrast, the buyer of assets is not bound to the substantive provisions of the collective bargaining agreement but might incur other obligations as a successor employer. Therefore, in an asset sale, the buyer is free to extract whatever concessions it can from the unionized employees of the seller.

If unionized employees are paid a high premium over other employees and a fraction of the value created by union concessions is passed on to the seller, then the seller has an incentive to get rid of the overpaid union through asset sales. Hence, we hypothesize that i) unionized firms are more likely to sell assets than nonunionized firms and ii) higher wage differential between unionized employees and average employees of the seller increases the probability of an asset sale. As an ancillary hypothesis, we expect these effects to be less pronounced for takeovers because the acquirers assume the union obligations and have to wait until contract expirations to seek concessions. Tian and Wang (2016) even argue that unions might stand in the way of realizing merger synergies, in which case union presence and high union pay might deter takeovers.

Table 2 presents results from linear probability regressions. The dependent variable in the first two models equals 1 if the sample firm makes an asset sale in that year, and 0 otherwise, and the dependent variable in the last two models equals 1 if the sample firm is taken over in that year, and 0 otherwise. The primary explanatory variables are i) UNION_PRESENCE, which indicates whether the firm is unionized, and ii) UNION_WAGE_PREMIUM, which is measured as the hourly wage difference between the unionized employees and average workers in the same industry (defined by 2-digit SIC codes) scaled by the average hourly industry wage in the previous fiscal year. In the first model, we examine all firms (i.e., both unionized and nonunionized firms). The UNION_PRESENCE coefficient is 0.068 and statistically significant at the 0.01 level, suggesting that unionized firms are more likely to sell assets than their nonunionized counterparts. The coefficient implies that the probability of asset sales increase by 6.8% in the presence of unions. This compares to the unconditional probability of asset sales of 13.2% and implies strong economic significance. The UNIONIZATION_RATE coefficient is also positive, but it does not differ statistically from 0 (p-value is 0.14). Perhaps the statistical power is insufficient to produce a statistically significant coefficient, or perhaps greater unionization rate means that the firm has more experience in effectively dealing with unions via dialogue.

In the second model, which is solely based on unionized firms, the UNION_WAGE_PREMIUM coefficient is 0.056 and statistically significant at the 0.01 level, suggesting that higher union wage premium induces asset sales. For a 10% increase in union wage differential, the coefficient implies that the probability of an asset sale increases by 0.56%. As a comparison, the unconditional probability of an asset sale in unionized firms is 19.0%.

TABLE 2

Linear Probability Regressions of the Likelihood of Asset Sales and Takeovers

Table 2 presents results of linear probability regressions of the effects of unionization and labor cost on asset sale and takeover decisions. In the first two models, the dependent variable equals 1 if the sample firm sells assets in a given year, and 0 otherwise. In the last two models, the dependent variable equals 1 if the sample firm is taken over in a given year, and 0 otherwise. UNION_PRESENCE is an indicator variable equal to 1 if the target is unionized, and 0 otherwise. UNION_WAGE_PREMIUM is the hourly wage difference between the unionized employees and average workers in the same industry (defined by 2-digit Standard Industrial Classification (SIC) codes) scaled by the average hourly industry wage in the previous fiscal year. Average hourly earnings were collected by year at the 2-digit SIC level from the Bureau of Labor Statistics's *Employment, Hours, and Earnings*. UNIONIZATION_RATE is the number of unionized workers scaled by total employment of the target 1 year prior to the transaction. Financial control variables include lagged values of the natural log value of total assets, the ratio of total debt to total assets, and net income divided by total assets. The regression coefficients of these control variables are suppressed for brevity. The sample period is 1987–2009. All specifications are estimated with robust clustered standard error clustered by firm and include industry × year fixed effects (FE) at the Fama–French 12-industries level. *p*-values for the coefficients are provided in parentheses.

	Asset Sales		Takeovers	
	All Firms	Unionized Firms	All Firms	Unionized Firms
UNION_PRESENCE	0.068 (0.000)		−0.030 (0.792)	
UNION_WAGE_PREMIUM		0.056 (0.000)		−0.129 (0.645)
UNIONIZATION_RATE	0.138 (0.142)	0.113 (0.191)	−0.002 (0.702)	−0.016 (0.122)
Financial controls	Yes	Yes	Yes	Yes
Industry × year FE	Yes	Yes	Yes	Yes
No. of obs.	19,535	2,014	16,132	1,985
Adj. R^2	0.134	0.229	0.118	0.173

(Incidentally, UNION_PRESENCE is not applicable for this sample of only unionized firms.)

In the last two models, we investigate whether union presence or union wage premium is related to the likelihood of takeovers. All of the coefficients are negative, but none are statistically different from 0. Thus, there is no evidence that union presence and union wage premium are positively related to the occurrence of takeovers, as we observed for asset sales.

In an untabulated analysis, we also examine whether high labor costs contribute to more asset sales among nonunionized firms. We view this to be a placebo test because we do not expect asset sales to be particularly suitable in reducing labor costs in these cases with no constraining union contracts. Using a sample of nonunionized firms, we estimate a logistic regression of asset sales against labor costs, defined as the ratio of total labor compensation to sales at the firm level.[7] The results suggest that high labor costs do not induce asset sales for this sample. Thus, the labor cost effect appears to be restricted to unionized firms.

To mitigate endogeneity concerns, we employ RDD to compare the probability of asset sales and takeovers for firms in which employees vote for unionization relative to firms in which employees vote against unionization. RDD can be used when candidates (in our case, firms) are selected for treatment (unionization) based on whether their value (fraction of votes) exceeds a certain cutoff value (50%). By comparing observations that are close to either side of the

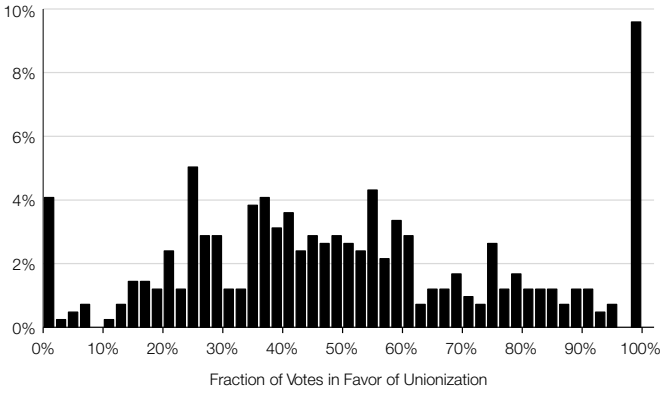
[7] As in the tabulated analysis, we also include financial controls, year fixed effects, and industry fixed effects. The results are similar if we normalize the unit labor costs by subtracting the mean of the same measure for industry peers in the same year.

threshold, it is possible to estimate a local average treatment effect (LATE), which might differ from the average effect for observations further away from the cutoff. Several studies have utilized RDD to assess the causal impact of unionization on various firm outcomes (DiNardo and Lee (2004), Lee and Mas (2012), Tian and Wang (2016), Schmalz (2016), and Bradley, Kim, and Tian (2017)).

An important identifying assumption of RDD is that agents cannot manipulate the forcing variable (i.e., the union vote share) near the cutoff point (Lee and Lemieux (2010)). To check the validity of this assumption, Figure 3 shows the distribution of union vote shares in 50 equally spaced bins. There is no abnormal pattern around the cutoff point to suggest manipulation.

FIGURE 3
Distribution of Union Vote Fraction

Figure 3 shows the distribution of the fractions of votes in favor of unionization in our sample across 50 equally spaced bins. Union election results are collected from the National Labor Relations Board (NLRB).



Another important assumption of the RDD is that firms that vote to unionize do not differ systematically ex ante from firms that vote against unionization. Table 3 compares firms that barely unionize with those that barely do not. There is no evidence to suggest that the two sets of firms differ in terms of size, profitability, capital structure, or likelihood of asset sales and takeovers.

TABLE 3
Comparison of Firms That Barely Unionize with Those That Do Not

Table 3 shows summary statistics for firms with union election outcomes that are barely below or above the cutoff (i.e., vote shares are between 48% and 52%). Union election results are from the National Labor Relations Board (NLRB). The statistics are for the union election year. PROB_ASSET_SALES is the number of firms that sell assets divided by the total number of firms. PROB_TAKEOVERS is the number of firms that are taken over divided by the total number of firms. ASSETS is the natural log value of total assets, ROA is net income scaled by total assets, and LEVERAGE is total debt scaled by total assets. The table provides average values for the last three variables.

	Union Win	Union Lose	Difference	*p*-Value
PROB_ASSET_SALES	0.453	0.500	−0.047	0.473
PROB_TAKEOVERS	0.020	0.025	−0.005	0.710
ASSETS	8.568	7.606	0.962	0.244
ROA	0.055	0.028	0.027	0.328
LEVERAGE	0.296	0.335	−0.039	0.119

Table 4 presents results from a nonparametric local RDD. The dependent variable in Panel A is an indicator variable equal to 1 if the sample firm sells assets in either the year or 2 years after the election, and 0 otherwise, and the independent variable, UNION_VICTORY, is an indicator variable equal to 1 if the election favors union representation, and 0 otherwise. In this local RDD, we only use observations close to the cutoff, and the bandwidth selection procedure follows either Calonico et al. (2014) or Imbens and Kalyanaraman (2012). Imbens and Kalyanaraman (2012) define the optimal bandwidth by minimizing the mean squared error (MSE) in a sharp regression discontinuity setting. This approach might lead to bandwidths that are too "large" and a first-order bias in the distributional approximation of the estimator. To address this drawback, Calonico et al. (2014) first bias-correct the RDD estimator to account for the effect of a "large" bandwidth choice and then rescale it with a novel standard error formula that accounts for the additional variability introduced by the estimated bias. Imbens and Lemieux (2008) point out that the choice of kernel typically has little impact. But 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. Irrespective of the bandwidth and the type of kernel, the coefficient of UNION_VICTORY is positive, with p-values ranging from <0.01 to 0.07. The estimates suggest that a union election victory leads to about 5% higher probability of asset sales in the subsequent 2 years.

TABLE 4

The Effect of Union Elections on Asset Sales and Takeovers: Nonparametric Local Regression Discontinuity

Table 4 presents results from estimating the effect of union election victory on the likelihood of asset sales and takeovers based on local regression discontinuity. The dependent variable in Panel A is an indicator variable equal to 1 if the sample firm sells assets during either the year or 2 years after the election, and 0 otherwise. The dependent variable in Panel B is an indicator variable equal to 1 if the sample firm is taken over during either the year or 2 years after the election, and 0 otherwise. UNION_VICTORY is an indicator variable equal to 1 if the election favors union representation, and 0 otherwise. The bandwidth selection procedures follow Calonico, Cattaneo, and Titiunik (2014) and Imbens and Kalyanaraman (2012). Results are based on triangular and uniform kernels. Union election results are from the National Labor Relations Board (NLRB). p-values for the coefficients are provided in parentheses.

	Triangular Kernel		Uniform Kernel	
	Post 1 Year	Post 2 Years	Post 1 Year	Post 2 Years
Panel A. The Effect of Union Elections on Asset Sales				
Calonico, Cattaneo, and Titiunik (2014) Optimal Bandwidth				
UNION_VICTORY	0.060	0.052	0.063	0.051
	(0.000)	(0.000)	(0.000)	(0.001)
No. of obs.	117	231	128	252
Imbens and Kalyanaraman (2012) Optimal Bandwidth				
UNION_VICTORY	0.064	0.053	0.035	0.043
	(0.005)	(0.005)	(0.068)	(0.006)
No. of obs.	186	366	200	393
Panel B. The Effect of Union Elections on Takeovers				
Calonico, Cattaneo, and Titiunik (2014) Optimal Bandwidth				
UNION_VICTORY	−0.030	−0.032	−0.026	−0.033
	(0.024)	(0.013)	(0.021)	(0.012)
No. of obs.	112	223	117	228
Imbens and Kalyanaraman (2012) Optimal Bandwidth				
UNION_VICTORY	−0.033	−0.037	−0.039	−0.032
	(0.058)	(0.027)	(0.045)	(0.018)
No. of obs.	156	308	187	359

Panel B of Table 4 presents an analogous RDD analysis for takeovers. The coefficient of UNION_VICTORY is consistently negative, with p-values ranging from 0.03 to 0.07. So, again, there is no evidence that firms resort to takeovers to deal with unions. Rather, the evidence suggests that unionization deters takeovers, consistent with Tian and Wang (2016), who undertake a similar analysis.

As indicated in Figure 3, there are limited union elections in close proximity to the threshold. Lee and Lemieux ((2010), p. 286) contend that "in order to produce a reasonable guess for the treated and untreated states at [the cutoff] with finite data, one has no choice but to use data away from the discontinuity." Therefore, we also conduct a global polynomial regression using all available elections (Cuñat, Gine, and Guadalupe (2012)). Like the local approach, our global approach relies on elections that are close to the cutoff but "borrows" strength from elections that are further from the cutoff to estimate the effect close to the cutoff.

Panel A of Table 5 reports the results from the quadratic polynomial regressions of asset sales. We control for the covariates used in Table 2. The coefficient of UNION_VICTORY is positive and statistically different from 0 at the 0.05 level in both regressions, and the results are qualitatively similar if we use other polynomial orders. Panel B of Table 5 presents the results from the cubic polynomial regressions of takeovers. The coefficient of UNION_VICTORY is negative and statistically different from 0 at the 0.10 level in both regressions. Overall, the RDD evidence suggests that a union election victory leads to a higher probability of asset sales, further corroborating a positive and causal effect of unionization on the likelihood of asset sales and that a union election victory leads to a lower

TABLE 5

The Effect of Union Elections on Asset Sales and Takeovers: Global Polynomial Regression Discontinuity

Table 5 presents results from estimating the effect of union election victory on the likelihood of asset sales and takeovers based on global polynomial regression discontinuity. The dependent variable in Panel A is an indicator variable equal to 1 if the sample firm sells assets during either the year or 2 years after the election, and 0 otherwise. The dependent variable in Panel B is an indicator variable equal to 1 if the sample firm is taken over during either the year or 2 years after the election, and 0 otherwise. UNION_VICTORY is an indicator variable equal to 1 if the election favors union representation, and 0 otherwise. Control variables from Table 2 are included, but the coefficients are suppressed for brevity. p-values for the coefficients are provided in parentheses.

	Post 1 Year	Post 2 Years
Panel A. Effect of Union Elections on Asset Sales		
UNION_VICTORY	0.049	0.037
	(0.035)	(0.041)
Polynomial order of vote share	Quadratic	Quadratic
Financial controls	Yes	Yes
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
No. of obs.	356	708
Adj. R^2	0.151	0.138
Panel B. Effect of Union Elections on Takeovers		
UNION_VICTORY	−0.038	−0.033
	(0.066)	(0.054)
Polynomial order of vote share	Cubic	Cubic
Financial controls	Yes	Yes
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
No. of obs.	378	773
Adj. R^2	0.132	0.158

probability of takeovers, suggesting that, if anything, unionization makes firms less attractive takeover candidates.

Our analysis suggests that unionization, and in particular high union pay, spurs asset sales. Presumably, the firms tried to extract concessions from the unions before resorting to such drastic measures, but the unions were too contentious. While it is hard to measure how hard the firms tried to extract concessions and how contentious the unions were, we try to get to this using labor strikes. In particular, we expect that negotiations that lead to labor strikes, which we call contentious negotiations, are associated with more asset sales than other negotiations, which we call noncontentious negotiations.

Panel A of Table 6 shows that 44 of 157 contentious negotiations, or 28%, are associated with announcements of asset sales in the same year, whereas less than 16% of noncontentious negotiations are associated with asset sales.[8] The difference of 12% is statistically significant (p-value < 0.01), even if we control for other determinants of asset sales, as in the regressions reported in Panel B (coefficient of 8.9%; p-value $= 0.011$). We present an analogous analysis for takeovers in the same table. Contentious negotiations are associated with slightly fewer takeovers (6.4%) than noncontentious negotiations (7.8%); while the

TABLE 6

The Effect of Contentious Labor Negotiations on Asset Sales and Takeovers

Table 6 shows the effect of contentious versus noncontentious labor negotiations on asset sales and takeovers. We define contentious negotiations as cases in which a strike occurs within 1 year of contract expirations and noncontentious negotiations as cases in which no strike occurs within 1 year of contract expirations. Panel A presents the probability of asset sales and takeovers following contentious and noncontentious negotiations. The probability of asset sales (takeovers) is calculated as the number of firms that sell assets (are taken over) within 1 year following contract expiration, divided by the total number of firms. p-values are based on pooled tests for the equality of means between contentious and noncontentious negotiations. Panel B presents results of linear probability regressions of the effects of contentious negotiation on asset sale and takeovers. In the first model, the dependent variable equals 1 if the sample firm sells assets within 1 year of a contract expiration. In the second model, the dependent variable equals 1 if the sample firm is taken over within 1 year of a contract expiration. CONTENTIOUS is an indicator variable that equals 1 if a strike occurs within 1 year of a contract expiration, and 0 otherwise. Financial control variables include lagged values of the natural log value of total assets, the ratio of total debt to total assets, and net income divided by total assets. The regression coefficients of these control variables are suppressed for brevity. The sample period is 1987–2009. Both specifications are estimated with robust clustered standard error clustered by firm and include industry × year fixed effects (FE).

Panel A. Probability of Asset Sales and Takeovers following Contract Expirations by Negotiation Type

	Contentious Negotiations ($N = 157$)	Noncontentious Negotiations ($N = 3{,}643$)	Difference	p-Value
Asset sales	0.280	0.158	0.122	0.001
Takeovers	0.064	0.078	−0.014	0.513

Panel B. Linear Regressions of the Likelihood of Asset Sales and Takeovers following Contract Expiration

	Asset Sales	Takeovers
CONTENTIOUS	0.089	−0.080
	(0.011)	(0.003)
Financial controls	Yes	Yes
Industry × year FE	Yes	Yes
No. of obs.	2,688	2,688
Adj. R^2	0.163	0.143

[8] While the 44 asset sale announcements and strikes occurred in the same year after the preceding contract expirations, 34 of the asset sales were announced after the initiations of the strikes, and all of the 44 asset sales were completed after the initiations of the strikes. This suggests that the strikes, or expectations thereof, triggered these asset sales.

univariate difference of 1.4% is statistically insignificant, the difference of 8.0% when controlling for other variables is statistically significant with a p-value of 0.003. In summary, contentious labor negotiations appear to spur asset sales and deter takeovers.

B. Do Acquiring Firms Gain Union Concessions?

In the previous section, we present evidence that firms with high union wage premiums are likely to sell assets to get rid of overpaid union workers. Next, we examine whether acquiring firms win union concessions following asset sales.

Rosett (1990) measures union concessions by the average decline in annual real wage growth following a takeover but reports trivial concessions. This is consistent with the acquiring firm being obliged to adopt the substantive provisions of the collective bargaining agreement as if no change has occurred. We hypothesize that acquiring firms obtain concessions from incumbent unions following asset sales but not necessarily following takeovers.

An implication of our hypothesis is that union wage growth should fall following asset sales but remain constant following takeovers. To measure the changes in annual wage growth from before a transaction to after the transaction, we construct a ratio of the average wage growth rate in the post-sale n years to the average wage growth rates in the pre-sale n years, where n is either 1, 2, or 3. We refer to this later as the wage growth ratio. The results are reported in Table 7.

We first examine asset sales. Brown and Medoff (1988) distinguish between two types of asset sales based upon the impact of the transactions on employment: i) firm A purchases the assets of firm B without absorbing its workers and ii) firm A purchases firm B and (at least initially) absorbs (most of) firm B's workers. We focus on the latter type, because in the former case the seller' contracts are terminated upon an asset sale and, thus, the change in wage growth is not available. To measure the changes in union wage growth associated with asset sales, we identify the contracts that are transferred from the seller to the buyer following an asset sale. We classify the contracts settled by buyers after the sale as either new or renewed. New contracts are defined as contracts that emerge following an asset sale, whereas renewed contracts are renewals of existing contracts. Panel A of Table 7 compares new and renewed contracts, as well as a control sample of contracts based on firms with the same 2-digit SIC code that did not sell assets. The median differences indicate that union wage growth of the new contracts increases at a slower pace than those of the renewed contracts and the sample of control contracts for all three horizons.

We then turn to takeovers. Because the legal entity remains intact following a takeover, we simply track the target firms' contracts around the transaction. To compare the targets both longitudinally with themselves as well as cross-sectionally with a control group, we define a set of control firms that share the same 2-digit SIC with the target firms but are not involved in a takeover. Panel B of Table 7 compares the average target firms' wage growth with that of the control firms around the takeover date. Both mean and median difference tests show that the changes in annual wage growth of the target firms are not significantly different from those of the control firms over a period of 1, 2, or 3 years.

TABLE 7

Bargaining Outcomes of Union Wage Growth in Asset Sales and Takeovers

Table 7 reports changes in wage growth rates around asset sales and takeovers. The changes in wage growth are measured by the ratio of the average wage growth rate during the post-sale *n* years to the average wage growth rates during the pre-sale *n* years, where *n* equals either 1, 2, or 3. Panel A compares new contracts to renewed contracts of acquiring firms in asset sales. New contracts are defined to be contracts that emerge following an asset sale, and renewed contracts are the renewal of the previous contracts settled before the asset sales. The control sample includes firms matched on 2-digit Standard Industrial Classification (SIC) codes that did not sell assets. Panel B compares the average targets' wage growth around the takeovers to that of control firms. The control sample includes firms matched on 2-digit SIC codes that were not involved in a takeover. The sample consists of 4,603 contracts from the BNA Labor Plus database between Jan. 1987 and Dec. 2009. *p*-values for mean and median tests are provided in parentheses.

	One Year		Two Years		Three Years	
	Mean	Median	Mean	Median	Mean	Median
Panel A. Ratio of Wage Growth in New and Renewed Contracts around Asset Sales Relative to the Ratio of Control Firms' Wage Growth						
New	1.140	1.022	1.047	1.020	1.094	1.003
	(0.552)	(0.755)	(0.546)	(0.389)	(0.694)	(0.745)
Renewed	1.192	1.088	1.138	1.111	1.051	1.084
	(0.067)	(0.028)	(0.075)	(0.000)	(0.136)	(0.046)
Control	1.208	1.133	1.097	1.131	1.162	1.087
	(0.055)	(0.015)	(0.085)	(0.000)	(0.013)	(0.044)
New – Renewed	−0.051	−0.066	−0.091	−0.091	0.044	−0.081
	(0.114)	(0.036)	(0.136)	(0.000)	(0.296)	(0.000)
New – Control	−0.068	−0.111	−0.050	−0.111	−0.068	−0.084
	(0.121)	(0.028)	(0.134)	(0.013)	(0.236)	(0.021)
Renewed – Control	−0.016	−0.045	0.041	−0.020	−0.111	−0.003
	(0.265)	(0.454)	(0.223)	(0.312)	(0.112)	(0.889)
Panel B. Ratio of Target Firms' Wage Growth around Takeovers Relative to the Ratio of Control Firms' Wage Growth						
Targets	1.101	1.125	1.108	1.032	1.153	1.035
	(0.184)	(0.025)	(0.387)	(0.489)	(0.053)	(0.605)
Control	1.100	1.113	1.131	1.033	1.150	1.032
	(0.158)	(0.371)	(0.323)	(0.783)	(0.765)	(0.575)
Targets – Control	0.001	0.012	−0.023	−0.001	0.003	0.003
	(0.232)	(0.756)	(0.853)	(0.717)	(0.564)	(0.671)

Next, we conduct a multivariate analysis. In particular, we regress annual real wage growth on indicator variables for the contract negotiation year relative to asset sales and takeovers. The control variables include firm size, leverage, return on assets (ROA), and fixed effects. Table 8 presents the regression results. The coefficients of the indicator variables for contract negotiations during years +1, +2, and +3 relative to asset sales are all negative and statistically different from 0 at the 0.01 level. None of the other year indicator coefficients differ statistically from 0. Our results suggest that wage growth declines following asset sales as a result of contract negotiations but not after takeovers, consistent with the notion that firms obtain union concessions following asset sales but not after takeovers.

In untabulated results, we also estimate the economic magnitude of the union wealth concessions from asset sales based on the second model specification in Table 8. We first estimate the real value (in 2009 dollars) of annual labor contract cost following the asset sale that would result if the pre-sale wage growth were to continue. Then we estimate the labor cost based on the assumption that wage growth is reduced for 1, 2, or 3 years following the asset sale. The union wealth

TABLE 8

Effects of Asset Sales and Takeovers on Annual Wage Growth

Table 8 presents ordinary least squares (OLS) regressions estimating the effects of either asset sales or takeovers on the level of annual rate of wage growth using 4,603 contracts from the BNA Labor Plus database between Jan. 1987 and Dec. 2009. The dependent variable is annual rate of wage growth over the contract. The primary independent variables are indicator variables for the year of the contract negotiation relative to asset sales or takeovers. Financial control variables include both contemporaneous and lagged values of the natural log value of total assets, the ratio of total debt to total assets, and net income divided by total assets. The regression coefficients of these control variables are suppressed for brevity. Both specifications are estimated with robust clustered standard error clustered by firm and include state fixed effects, year and industry fixed effects (FE) at the Standard Industrial Classification (SIC) 2-digit level. *p*-values for the coefficients are provided in parentheses.

	No. of Obs.	Model 1	Model 2
Negotiation Year Relative to Asset Sales			
YEAR_−3	214	−0.134	−0.130
		(0.172)	(0.110)
YEAR_−2	223	0.049	−0.019
		(0.549)	(0.819)
YEAR_−1	182	0.147	0.159
		(0.338)	(0.399)
YEAR_+1	204	−0.335	−0.366
		(0.000)	(0.000)
YEAR_+2	182	−0.593	−0.571
		(0.000)	(0.000)
YEAR_+3	179	−0.481	−0.446
		(0.000)	(0.000)
Negotiation Year Relative to Takeovers			
YEAR_−3	113	0.123	0.103
		(0.600)	(0.456)
YEAR_−2	126	0.929	0.067
		(0.739)	(0.751)
YEAR_−1	137	0.023	−0.013
		(0.765)	(0.587)
YEAR_+1	136	−0.447	0.091
		(0.385)	(0.487)
YEAR_+2	106	−0.042	−0.018
		(0.745)	(0.612)
YEAR_+3	132	0.357	0.078
		(0.372)	(0.435)
Financial controls		No	Yes
State FE		No	Yes
Industry and year FE		Yes	Yes
No. of obs.		4,603	4,603
Adj. R^2		0.189	0.263

concession is the divergence between the two costs.[9] Scaling by the transaction value, we estimate that the average (median) wealth concession over 1 year is 6.0% (0.8%), and it increases to 17.8% (2.3%) over 2 years and 35.4% (4.6%)

[9]The present value (in 2009 dollars) of the union wealth concession over 3 years following an asset sale for firm i can be expressed as

$$\Delta U_i = H_i \times E_i \times W_i \times \left\{ \sum_{t=1}^{3} \left[\left(\frac{1+w_i}{1+r} \right)^t - \left(\frac{1+w_i-\gamma}{1+r} \right)^t \right] \right\},$$

where H_i is the average hours worked (including 1.5 times overtime hours) per year for the 2-digit SIC industry of the firm, E_i is the number of unionized employees for firm i, W_i is the hourly wage before the asset sale for firm i, and w_i is the annual wage growth for firm i. The real interest rate, r, is defined as the rate of inflation of the consumer price index (CPI) over the 12 months before the asset sale. Lastly, γ is the effect of the asset sales on wage growth estimated in the second specification of Table 8.

over 3 years as more of the contracts are negotiated. Thus, the concessions are economically very significant.

While our analysis focuses on whether firms gain union concessions following asset sales, it is also possible that firms gain concessions from the mere *threat* of asset sales. Because we cannot readily observe the threat of asset sales, it is difficult to empirically test this possibility. But as a tentative test, we examined whether wage growth is lower for unionized firms with higher probability of selling assets. In particular, we first estimated the probability that firms sell assets in a given year based on the second model of Table 2, but where union wage premium is excluded as an independent variable. Then we regress wage growth against the predicted asset sale probability and control variables. The coefficient of the predicted asset sale probability is −0.182 with a p-value of 0.084 (not tabulated). Thus, there is some evidence, albeit weak, that the mere threat of an asset sale spurs concessions.

C. Union Concessions and Stock Returns around Announcements of Asset Sales and Takeovers

In this section, we explore the sources of value in asset sales and takeovers. To do so, we examine the determinants of the abnormal stock returns around the announcements. Because asset sales can be used to extract concessions from unions, we hypothesize that union concessions affect announcement returns for asset sales. The effect for takeovers, if any, should be weaker, based on our earlier arguments and results.

Rosenfeld (1984) estimates that the economic gains to the shareholders of the selling and buying firms in asset sales are similar. If part of the value created by union concessions is passed on to the seller via the selling price, union concessions should affect the announcement returns for both the acquirer and the target. Consequently, we examine the announcement returns for both parties in the transactions.

We estimate the cumulative abnormal returns (CARs) over the 3 days centered on the announcements using the market model and the CRSP equal-weighted index returns as the proxy for the market returns. The parameters for the market model are estimated over the 200 trading days ending 10 days before the announcements. Our results are similar if we calculate abnormal returns by simply subtracting the value-weighted CRSP market returns from the firms' returns.

1. The Relation between Unionization and Acquirer Announcement Returns

Panel A of Table 9 displays CARs for acquirers in asset sales versus takeovers. In asset sales, the mean CAR for acquirers is 2.0%, which is similar to those reported by Rosenfeld (1984) and Slovin, Sushka, and Polonchek (2005). For the subsample of unionized targets, the acquirers' mean (median) CAR is 3.7% (1.6%), compared to a mean (median) CAR of 1.9% (0.7%) for the subsample of nonunionized targets.[10] The differences in both the means and medians are statistically significant at the 1% level. These results suggest that the unionization status of the targets affects the acquirers' CAR.

[10]Due to the limitation of the contract settlement database, unionized targets cannot be identified in some cases.

TABLE 9

The Effect of Unionization on Announcement Returns of Acquirers

Table 9 presents analyses of the cumulative announcement returns (CARs) around announcements of takeovers or asset sales for the acquiring firms. The sample comprises 5,286 asset sales and 5,549 takeovers completed between 1987 and 2009. Abnormal returns are calculated using a standard market model methodology, in which the parameters are estimated from day −211 to day −11 relative to the announcement dates. CARs are then estimated for days −1 to +1 relative to the announcement dates. In the takeover announcement of Parker and Parsley Petroleum, the 3-day CAR is 108.13%, and this outlier has been excluded from the analyses. Panel A summarizes the mean and median CARs by transaction type (asset sale vs. takeovers) and the unionization status of the targets. Panel B presents the results of ordinary least squares (OLS) regressions of CARs around asset sale announcements. UNIONIZATION_RATE is the number of unionized workers divided by total employment of the target 1 year prior to the transaction. RTV is the reported value of the transaction divided by the market value of equity of the acquirer 1 year prior to the sale. UNION_WAGE_PREMIUM is the hourly wage difference between the unionized employees and average workers in the same industry divided by the average hourly industry earnings in the previous fiscal year. Average hourly earnings were collected by year at the 2-digit Standard Industrial Classification (SIC) level from the Bureau of Labor Statistics's *Employment, Hours, and Earnings*. CONCESSION is the difference between the wage growth ratio associated with the transaction and the mean of wage growth ratios. The regression coefficients of the financial control variables are suppressed for brevity. All specifications are estimated with robust clustered standard error clustered by industry at the 2-digit SIC level, and industry × year fixed effects (FE) are at the Fama–French 12-industries level. *p*-values for the coefficients are provided in parentheses.

Panel A. Acquirers' CARs by Transaction Type and Targets' Unionization Status

	Unionized Targets	Nonunionized Targets	Difference
Asset Sales			
No. of obs.	347	4,939	
Mean	0.037	0.019	0.017
	(0.000)	(0.000)	(0.000)
Median	0.016	0.007	0.009
	(0.000)	(0.000)	(0.001)
Takeovers			
No. of obs.	169	5,380	
Mean	0.014	0.014	0.000
	(0.120)	(0.086)	(0.978)
Median	−0.002	−0.001	−0.001
	(0.645)	(0.406)	(0.953)

Panel B. Regressions of Acquirers' CARs around Asset Sales Announcements

	All Asset Sales		Asset Sales with Available Union Wage Premium Data		Asset Sales with Available Union Concessions Data	
	1	2	3	4	5	6
UNIONIZATION_RATE	0.195	−0.478	−1.083	−1.051		
	(0.000)	(0.789)	(0.782)	(0.495)		
UNIONIZATION_RATE × RTV		1.031	2.588	2.715		
		(0.000)	(0.000)	(0.000)		
UNION_WAGE_PREMIUM			−0.049	−0.549		
			(0.837)	(0.108)		
UNION_WAGE_PREMIUM × RTV				1.432		
				(0.001)		
CONCESSION					0.004	0.000
					(0.168)	(0.978)
CONCESSION × RTV						0.053
						(0.028)
RTV	0.017	0.013	0.368	0.289	0.116	0.123
	(0.000)	(0.000)	(0.010)	(0.055)	(0.006)	(0.047)
Financial controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry × year FE	Yes	Yes	Yes	Yes	No	No
No. of obs.	5,121	5,121	195	195	154	154
Adj. R^2	0.040	0.055	0.465	0.513	0.145	0.169

For takeovers, the mean CAR for acquirers is 1.4%, irrespective of whether the target is unionized. The median CAR is also similar across the unionized and nonunionized targets. Thus, the unionization status of the target seems unrelated to the acquirers' CAR in takeovers.

Panel B of Table 9 presents results from ordinary least squares (OLS) regressions of the acquirers' CARs in asset sales. In model 1, we use the proportion of union workers in the target firm, UNIONIZATION_RATE, as a measure of targets' union status.[11] The coefficient of UNIONIZATION_RATE is positive and significantly different from 0, suggesting that the gains of acquirers increase with the target unionization rate.[12]

All regression models control for the relative transaction value (RTV), defined as the reported value of the sale transaction divided by the market value of equity of the buyer 1 year prior to the sale. Miles and Rosenfeld (1983) find that the relative transaction value is positively correlated to asset sale announcement return. Our results support their finding. In model 2 of Table 9, we also add an interaction variable between UNIONIZATION_RATE and RTV. The coefficient of this interaction variable is positive and significant, indicating that the positive effect of unionization is magnified by the relative transaction value.

In models 3 and 4 of Table 9, we include UNION_WAGE_PREMIUM, calculated as the hourly wage difference between the unionized employees and average workers in the same industry (defined by the 2-digit SIC code) divided by the average hourly industry earnings in the previous fiscal year. The coefficient of this variable is statistically insignificant. We then add an interaction term between UNION_WAGE_PREMIUM and RTV in model 4. The coefficient of the interaction term is positive with a p-value less than 0.01, indicating that acquirers' gains are larger if the unionized employees at the target are paid a high premium and the transaction is relatively large.

In models 5 and 6 of Table 9, we examine the effect of the realized concessions.[13] All observations are required to have available union concessions data, and, as a result, all acquirers are unionized in this subsample. The concession variable, CONCESSION, is calculated by subtracting the wage growth ratio, as defined earlier, from its mean. CONCESSION alone does not have a significant impact on buyers' returns, but the coefficient of an interaction term between CONCESSION and RTV is positive with a p-value of 0.03, indicating that union concessions, when amplified by the relative transaction value, positively affect acquirers' returns.

Because union-related obligations survive the transfer of ownership following a takeover, we have no reason to predict that union concessions explain announcement-period returns for acquirers in takeovers. Indeed, when we run the same regressions as those in Panel B of Table 9 for the sample of takeovers, we

[11] For robustness, we also use union presence at the target firm as the primary explanatory variable and find that the acquirer abnormal returns are 2.6% higher for asset sales for which targets are union firms than for those for which targets are nonunion firms.

[12] We also test whether the level of unionization has an incremental impact on abnormal returns over the presence of union at the firm level; coefficients on both variables are positive and significant, implying that the level of unionization has additional power over union presence in influencing announcement returns.

[13] Of course, realized wage concessions are not available to market participants at the time of the deal announcement. Thus, our regressions that include realized wage concessions as an independent variable depend on the assumption that the announcement provides information that allows market participants to predict such wage concessions. A caveat is that if the prediction error is not orthogonal to the information available at the time of the announcement, the results might be biased.

find that none of the coefficients are statistically significant at conventional levels (not tabulated).

2. The Relation between Unionization and Target Announcement Return

If part of the value created by union concessions is passed on to the target via the transaction price, then union concessions should also affect the targets' abnormal returns. Table 10 presents evidence consistent with this conjecture. Panel A displays announcement-period abnormal returns for targets in both asset sales and takeovers. We focus on asset sales first. The average CAR for the sample is 3.1% (p-value < 0.01) over a 3-day period around the day of the sale announcement. In comparison, Klein (1986) finds an average abnormal return of 1.13% from day -2 to day 0, Jain (1985) finds an average abnormal return of 0.5% from day -1 to day 0, Hite et al. (1987) find an average abnormal return of 1.66% from day -1 to day 0, and John and Ofek (1995) find an average abnormal return of 1.5% from day -2 to day 0. The abnormal returns vary significantly with the unionization status of the sellers; the median 3-day CAR is 1.9% when the sellers are unionized, which is significantly higher than the median of 1.4% when the sellers are not unionized.

We then examine announcement-period CARs of targets in takeovers. The average 3-day target firm abnormal return is 25.1%. Combined with Panel A of Table 9, the results suggest that the announcement-period gains from takeovers primarily accrue to target firm shareholders, consistent with Jensen and Ruback (1983), Jarrell, Brickley, and Netter (1988), Andrade, Mitchell, and Stafford (2001), and many other recent studies. More importantly for the purpose of this study, we find no statistically significant difference in 3-day CARs across unionized and nonunionized targets.

Panel B of Table 10 presents OLS regression results of the 3-day CARs for the targets. Overall, the results are similar to those reported for acquirers' CARs in Panel B of Table 9. In model 1, the coefficient of UNIONIZATION_RATE is positive and statistically significant (p-value < 0.01). In model 2, we include an interaction with RTV, defined here as the reported value of the sale transaction divided by the market value of equity of the target 1 year prior to the sale. The coefficient of the interaction between UNIONIZATION_RATE and RTV is positive with a p-value less than 0.01. In models 3 and 4, we include UNION_WAGE_PREMIUM. This variable is positively related to target returns, but only when interacted with RTV (p-value is 0.03).

Lastly, in model 5 and 6 of Table 10, we include CONCESSION and an interaction between CONCESSION and RTV. The coefficient of the interaction term is significantly positive (p-value is 0.02), indicating that union concessions, when amplified by the relative transaction value, have a positive effect on the targets' returns.

We also ran the same regressions using the announcement-period return for targets in takeovers. Untabulated results reveal that none of the coefficients are significant at conventional levels. Thus, there is no evidence that union concessions explain the announcement returns for targets in takeovers.

TABLE 10

The Effect of Unionization on Announcement Returns of Targets

Table 10 presents analyses of the cumulative announcement returns (CARs) around announcements of takeovers or asset sales for the target firms. The sample comprises 4,758 asset sales and 5,471 takeovers completed between 1987 and 2009. Abnormal returns are calculated using a standard market model methodology, in which the parameters are estimated from day −211 to day −11 relative to the announcement dates. CARs are then estimated for days −1 to +1 relative to the announcement dates. Panel A summarizes the mean and median CARs by transaction type (asset sale versus takeovers) and the unionization status of the targets. Panel B presents the results of ordinary least squares (OLS) regressions of CARs around asset sale announcements. UNIONIZATION_RATE is the number of unionized workers divided by total employment of the target 1 year prior to the transaction. RTV is the reported value of the transaction divided by the market value of equity of the target 1 year prior to the sale. UNION_WAGE_PREMIUM is the hourly wage difference between the unionized employees and average workers in the same industry divided by the average hourly industry earnings in the previous fiscal year. Average hourly earnings were collected by year at the 2-digit Standard Industrial Classification (SIC) level from the Bureau of Labor Statistics's *Employment, Hours, and Earnings*. CONCESSION is the difference between the wage growth ratio associated with the transaction and the mean of wage growth ratios. The regression coefficients of the financial control variables are suppressed for brevity. All specifications are estimated with robust clustered standard error clustered by industry at the 2-digit SIC level, and industry × year fixed effects (FE) are at the Fama–French 12-industries level. *p*-values for the coefficients are provided in parentheses.

Panel A. Targets' CARs by Transaction Type and Targets' Unionization Status

	Unionized Targets	Nonunionized Targets	Difference
Asset Sales			
No. of obs.	312	4,446	
Mean	0.042	0.031	0.011
	(0.000)	(0.000)	(0.303)
Median	0.019	0.014	0.005
	(0.000)	(0.000)	(0.048)
Takeovers			
No. of obs.	159	5,312	
Mean	0.234	0.257	−0.023
	(0.000)	(0.000)	(0.393)
Median	0.212	0.183	0.029
	(0.000)	(0.000)	(0.477)

Panel B. Regressions of Targets' CARs around Asset Sales Announcements

	All Asset Sales		Asset Sales with Available Union Wage Premium Data		Asset Sales with Available Union Concessions Data	
	1	2	3	4	5	6
UNIONIZATION_RATE	0.172	−0.026	0.163	0.128		
	(0.000)	(0.673)	(0.232)	(0.268)		
UNIONIZATION_RATE × RTV		0.039	0.175	0.169		
		(0.006)	(0.212)	(0.348)		
UNION_WAGE_PREMIUM			−0.021	−0.025		
			(0.555)	(0.435)		
UNION_WAGE_PREMIUM × RTV				0.026		
				(0.021)		
CONCESSION					0.008	−0.013
					(0.274)	(0.218)
CONCESSION × RTV						0.083
						(0.015)
RTV	0.058	0.023	0.0519	0.049	0.157	0.343
	(0.000)	(0.000)	(0.017)	(0.032)	(0.008)	(0.013)
Financial controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry × year FE	Yes	Yes	Yes	Yes	No	No
No. of obs.	4,557	4,557	146	146	85	85
Adj. R^2	0.008	0.004	0.065	0.083	0.329	0.563

D. The Effect of RTW Laws

Our main results are presumably attributable to powerful unions that inflate labor costs. Without powerful unions, there would be no need to sell assets to mitigate high labor costs. RTW laws prohibit unions from making membership or payment of dues a condition of employment, thereby reducing unions' bargaining

power. Consequently, we expect RTW laws to weaken our results, at least those that rely on expected concessions. (Results that rely on realized concessions already reflect the power of the unions.) To test this, we bifurcate our sample based on whether the target firms operate in states with RTW laws and run our main tests separately for the two subsamples. But first we simply add an indicator variable for whether firms are located in states with RTW laws to test for an average difference.

In Panel A of Table 11, we examine the effect of RTW laws on the probability of asset sales. In the first model (based on both unionized and nonunionized firms) and fourth model (based on only unionized firms), we add a non-RTW indicator, NON_RTW, to the specifications used in Table 2. The NON_RTW coefficient is positive and statistically significant in both models, suggesting that firms in states with stronger unions are more likely to sell assets. Models 2, 3, 5, and 6 employ subsamples based on RTW laws. The results show that the coefficients of interest are more pronounced for the subsamples of firms in states without RTW laws. In particular, the UNION_PRESENCE coefficient and the UNION_WAGE_PREMIUM coefficient are both positive and statistically significant for the sample of firms operating without RTW laws, but neither coefficient differs statistically from 0 for the sample of firms operating with RTW laws. We interpret these results to mean that firms that have their primary business in a state without RTW laws in effect are more likely to use asset sales to obtain concessions from unions.

Next, we investigate how RTW laws affect i) asset sale announcement returns and ii) the relation between our unionization measures and asset sale announcement returns. Panels B and C of Table 11 present model specifications similar to those in models 1 and 2 of Panel B in Tables 9 and 10. The NON_RTW coefficients in models 1 and 4 of Panels B and C are positive with a p-value around 0.02, suggesting that announcement returns are higher for both the acquirer and seller when the seller is located in a state with stronger unions. The results in models 2, 3, 5, and 6 of Panels B and C show that the UNIONIZATION_RATE coefficients are only statistically significant in the non-RTW sample, suggesting that the majority of the value created by union concessions in asset sales come from those targets that have their primary business in a state without RTW laws. This supports the conjecture that when union power is constrained by RTW laws, there is less concession to be extracted from the incumbent union in the process of an asset sale.

We also examine the effect of RTW laws of the states in which both the acquirers and targets are located. This entails numerous regression models that have not been tabulated for brevity. For the sample of asset sales, the RTW status of the acquirer's state has no effect on the probability of an acquisition or on the average announcement returns. However, there is some evidence that the relation between unionization and announcement returns is stronger when the acquirer is located in a non-RTW state. In particular, the unionization coefficient is strongest for the regressions of the acquirer's CAR and the target's CAR when both the acquirer and target are located in non-RTW states. One interpretation of these results is that asset sales motivated by the need to mitigate the stronghold of unions are likely to generate more value when the acquiring firms have experience in

dealing with strong unions. For the sample of takeovers, neither the RTW laws of the acquirer's state nor the RTW laws of the target's state are related to the probability of a transaction. Furthermore, the relation between unionization and announcement returns is not significantly positive for any partitioning of the sample based on RTW laws of the acquirers' states or the targets' states. There is, however, some evidence that the RTW laws of the acquirers' states (but not the RTW laws of the targets' states) affect the announcement returns. In particular, the coefficient of an indicator that the acquirer is in an RTW state is positive in regressions of both the acquirers' CAR (coefficient is 0.008; p-value is 0.034) and the targets' CAR (coefficient is 0.029; p-value is 0.099). These latter results are consistent with the arguments and results in John et al. (2015).

E. What Prevents Current Owners from Extracting Concessions at Contract Renegotiations?

Our earlier results show that the likelihood of asset sales increases with union presence, high union wages, and contentious union negotiations, and that the acquirers are able to extract concessions from the unions. The evidence suggests

TABLE 11
The Effect of Right-to-Work Laws

Table 11 presents the effect of right-to-work (RTW) laws on the probability of asset sales and the accompanying wealth effects. The sample is bifurcated based on whether the target is located in a state with RTW laws. Panel A presents results of linear probability regressions of the effects of unionization and labor cost on asset sale decisions. The dependent variable equals 1 if the sample firm sells assets in that year. UNION_PRESENCE is an indicator variable equal to 1 if the target is unionized, and 0 otherwise. UNION_WAGE_PREMIUM is the hourly wage difference between the unionized employees and average workers in the same industry defined by 2-digit Standard Industrial Classification (SIC) code as a fraction of average hourly earnings at the 2-digit SIC level in the previous fiscal year. Average hourly earnings were collected by year at the 2-digit SIC level from the Bureau of Labor Statistics's *Employment, Hours, and Earnings*. UNIONIZATION_RATE is the number of unionized workers divided by total employment of the target 1 year prior to the transaction. RTV is the reported value of the transaction divided by the market value of equity of the target 1 year prior to the sale. NON_RTW is equal to 1 if the target firm is not located in a state with RTW laws, and 0 otherwise. All specifications are estimated with robust clustered standard error clustered by firm and include industry × year fixed effects at the Fama–French 12-industries level. Panel B reports ordinary least squares (OLS) regressions of CARs around announcements of asset sales for the acquiring firms. Panel C presents OLS regressions of CARs around announcements of asset sales for the target firms. Abnormal returns are calculated using a standard market model methodology, in which the parameters are estimated from day −211 to day −11 relative to the announcement dates. CARs are then estimated for days −1 to +1 relative to the announcement dates. The regression coefficients of the financial control variables are suppressed for brevity. All specifications are estimated with robust clustered standard error clustered by industry at the 2-digit SIC level and include industry × year fixed effects (FE) at the Fama–French 12-industries level. p-values for the coefficients are provided in parentheses.

	All Firms	All Firms			Unionized Firms	Unionized Firms		
	All Firms	RTW	Non-RTW		Unionized Firms	RTW	Non-RTW	
	1	2	3	Difference	4	5	6	Difference
Panel A. Effect of Right-to-Work (RTW) Law on the Likelihood of Asset Sales								
UNION_PRESENCE	0.063	0.037	0.074	−0.037				
	(0.000)	(0.249)	(0.000)	(0.000)				
UNION_WAGE_PREMIUM					0.052	0.036	0.061	−0.025
					(0.000)	(0.320)	(0.000)	(0.000)
UNIONIZATION_RATE	0.133	0.131	0.145		0.118	0.062	0.124	
	(0.141)	(0.171)	(0.136)		(0.132)	(0.315)	(0.121)	
NON_RTW	0.078				0.034			
	(0.000)				(0.000)			
Financial controls	Yes	Yes	Yes		Yes	Yes	Yes	
Industry × year FE	Yes	Yes	Yes		Yes	Yes	Yes	
No. of obs.	18,036	6,012	12,024		2,004	408	1,596	
Adj. R^2	0.186	0.232	0.216		0.235	0.273	0.232	

(continued on next page)

TABLE 11 (continued)
The Effect of Right-to-Work Laws

	All Firms	RTW	Non-RTW		All Firms	RTW	Non-RTW	
	1	2	3	Difference	4	5	6	Difference
Panel B. Effect of RTW Laws on the Relation between Unionization and Acquirers' CARs								
UNIONIZATION_RATE	0.147	−0.019	0.231	−0.250	−0.328	−0.064	−0.576	
	(0.000)	(0.648)	(0.000)	(0.000)	(0.349)	(0.328)	(0.135)	
UNIONIZATION_RATE × RTV					1.313	0.323	1.061	−0.738
					(0.000)	(0.332)	(0.000)	(0.000)
RTV	0.021	0.023	0.022		0.015	0.018	0.016	
	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	
NON_RTW	0.025				0.040			
	(0.015)				(0.025)			
Financial controls	Yes	Yes	Yes		Yes	Yes	Yes	
Industry × year FE	Yes	Yes	Yes		Yes	Yes	Yes	
No. of obs.	4,930	1,606	3,324		4,930	1,606	3,324	
Adj. R^2	0.038	0.029	0.042		0.067	0.028	0.037	
Panel C. The Effect of RTW Laws on the Relation between Unionization and Targets' CARs								
UNIONIZATION_RATE	0.102	−0.128	0.232	−0.360	−0.060	−0.225	−0.023	
	(0.000)	(0.427)	(0.011)	(0.000)	(0.871)	(0.563)	(0.583)	
UNIONIZATION_RATE × RTV					0.027	0.040	0.432	−0.392
					(0.000)	(0.827)	(0.017)	(0.000)
RTV	0.011	0.063	0.018		0.010	0.020	0.024	
	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	
NON_RTW	0.016				0.006			
	(0.023)				(0.022)			
Financial controls	Yes	Yes	Yes		Yes	Yes	Yes	
Industry × year FE	Yes	Yes	Yes		Yes	Yes	Yes	
No. of obs.	4,398	1,418	2,980		4,398	1,418	2,980	
Adj. R^2	0.035	0.041	0.058		0.035	0.049	0.052	

that the acquirers are better able to extract labor concessions than the sellers. The acquirers naturally have the advantage of not having to recognize the unions associated with the acquired assets (as discussed earlier), and a decision not to honor existing contracts sends a clear signal that the contractual terms are too onerous.

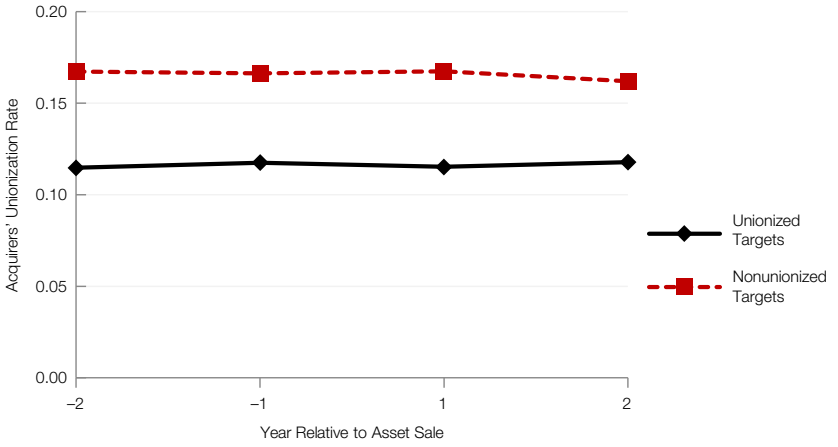
There are a couple of possibilities for why acquirers are better able to extract labor concessions. First, they might be more skilled and experienced in dealing with unions. If so, we expect that acquirers of assets from unionized sellers have high unionization rates and are located in non-RTW states, where successful union negotiations are especially critical. Alternatively, the acquirers might limit the effects of the unions by suppressing their presence and influence (e.g., not recognize the unions associated with the acquired assets) and by exploiting a climate less conducive to unions. If so, we expect that the acquirers of assets from unionized sellers have low unionization rates, exhibit little increase in unionization when buying those assets, and are located in RTW states.

Figure 4 presents the acquirers' average unionization around asset purchases. There are two results of interest. First, the unionization rates are, on average, considerably lower among firms that purchase assets from unionized sellers (about 12%) than among firms that purchase assets from nonunionized sellers (about 17%). Second, there is no indication that unionization rates increase, even when

FIGURE 4

Acquirers' Unionization Rate around Asset Purchases

Figure 4 shows the acquiring firms' average unionization rate in the years relative to their asset purchases of unionized and non-unionized targets. The unionization rate is calculated as the number of unionized workers divided by total employees. Year −2 refers to days [−730,−365] relative to the asset purchase, year −1 refers to days [−365,0], year +1 refers to days [0,365], and year +2 refers to days [365,730].



the seller is unionized. This suggests that many union contracts are permanently dismantled upon asset purchases.

In the first model of Table 12, we examine the characteristics of firms that purchase assets from unionized targets in a regression framework. In particular, we examine the effect of acquirers' RTW status and unionization rate on the decision to buy assets from unionized versus nonunionized targets. The results show that acquirers are more likely to acquire assets from unionized targets when their own unionization rate is low (consistent with Figure 4) and when they are located in RTW states. In the second model of Table 12, we show that any future union contracts exhibit greater concessions if the acquirer is located in an RTW state and the seller is not.

In sum, there is no evidence that the acquirers of the assets have particular skills or experience in negotiating with the unions. Rather, the evidence suggests that the acquirers are better equipped to curtail the effects the unions by not recognizing or renewing the union contracts and exploiting a less union-friendly environment.[14] We interpret this to mean that part of the motivation for selling assets of unionized targets is to transfer the assets to less union-friendly settings, thereby loosening the grip of the unions and undoing any adverse effects of the union contracts.

[14] While it is hard to track the assets following the sale, we also identified anecdotal evidence of firms relocating acquired assets from a non-RTW state to a RTW state. For example, D-A Lubricant Co. purchased the Brad Penn Lubricants brand from American Refining Group (ARG) in 2014, and subsequently relocated the production of Brad Penn Lubricants from Pennsylvania to its own headquarter in Indiana. Furthermore, Powell Industries Inc. purchased certain assets related to the manufacturing of ANSI medium-voltage switchgear and circuit breakers from the General Electric Company in 2006 and then relocated the product line from Massachusetts to Texas.

TABLE 12
Who Acquires Assets from Unionized Firms?

The first column of Table 12 presents results of linear probability regressions of whether the target of the asset sale is unionized. The second column presents the effect of acquirers' and targets' RTW status and acquirers' unionization rate on union wage concession. Union wage concession is calculated by subtracting the annual rate of wage growth of unionized employees from the mean of wage growth rates of all firms in the same industry at the 2-digit Standard Industrial Classification (SIC) level in the same year. RTW_ACQUIRER is an indicator variable equal to 1 if the acquiring firm of an asset sale is located in a state with RTW laws, and 0 otherwise. RTW_TARGET is an indicator variable equal to 1 if the target firm of an asset sale is located in a state with RTW laws, and 0 otherwise. UNIONIZATION_RATE_ACQUIRER is the number of unionized workers divided by total employees for the acquirer. The regression coefficients of the financial control variables are suppressed for brevity. Both specifications are estimated with robust clustered standard error clustered by industry at the 2-digit SIC level and include industry × year fixed effects (FE). *p*-values for the coefficients are provided in parentheses.

	Unionized Targets	Union Wage Concession
RTW_ACQUIRER	0.016	0.095
	(0.000)	(0.002)
RTW_TARGET	−0.035	−0.134
	(0.135)	(0.015)
UNIONIZATION_RATE_ACQUIRER	−0.024	−0.084
	(0.066)	(0.297)
Financial controls	Yes	Yes
Industry × year FE	Yes	Yes
No. of obs.	4,930	1,433
Adj. R^2	0.076	0.089

V. Conclusion

We examine the role of union wealth concessions in asset sales and takeovers. We conjecture that the potential for union concessions induces asset sales and explains much of the associated value creation. Moreover, because of the law on successorship, we conjecture that the potential for union concessions does not induce takeovers and that unionization might even deter takeovers. Our results support our conjectures. First, regression results show that union presence and union wage premiums induce asset sales but not takeovers. RDD results confirm that unionization induces asset sales, and they also suggest that unionization, if anything, deters takeovers. Second, acquiring firms obtain substantial concessions from the incumbent union following an asset sale but not following a takeover. Third, both anticipated and realized union concessions explain part of the excess stock returns around asset sale announcement but are unrelated to takeover announcement returns. Finally, RTW laws, which weaken the unions that motivated the asset sales in the first place, also weaken our results.

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