

# Labor Voice in Corporate Governance: Evidence from Opportunistic Insider Trading

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# Labor Voice in Corporate Governance: Evidence from Opportunistic Insider Trading

## ABSTRACT

This study examines whether labor plays a role in corporate governance by disciplining opportunistic insider trading behavior. We find that firms with organized labor experience statistically significant declines in both opportunistic insider trading activity and profitability through the employee welfare channel, labor unions' initiated shareholder proposals, and external mechanisms, including media and political support. The baseline evidence is robust to possible endogeneity concerns, alternative measures of insider trading activity, and conventional corporate governance measures. Further analyses suggest that labor's corporate governance reduces the incidence of illegal insider trading, enhances firm productivity and performance, and lowers the return predictive power of insider trades.

**Keywords:** Opportunistic Insider Trading; Labor Unions; Employees; Employee Opportunism; Corporate Governance

**JEL Classification Number:** G14; G31; M54

# 1. Introduction

Corporate purpose is now the center of a fundamental and intense debate, with increasing support for corporations to move from shareholder value maximization to stakeholder governance and stakeholder welfare. In August 2019, Business Roundtable CEOs from 181 of the world’s largest companies signed a statement that they commit “to create value for all our stakeholders” and “urge leading investors to support companies that build long-term value by investing in their employees and communities.”<sup>12</sup> While this changing landscape has spurred the growing research in stakeholders’ influence on corporate governance, the efficacy of their governance role remains debatable. Some studies find factors that undermine stakeholders’ incentives to discipline corporate managers, while others suggest ambiguous value implications of stakeholder influence, implying the misaligned interests between shareholders and nonfinancial stakeholders.<sup>3</sup> Our study examines the role of employees, through organized labor (a collective labor voice), in curbing self-serving managerial actions, specifically opportunistic trading. We also investigate three economic mechanisms through which employees discipline such trading behavior and assess the economic consequences, including shareholder wealth implications, of this disciplining effect.

Employees receive explicit claims on a firm’s cash flows in the form of debt (salary and pensions) or equity (employee stock ownership plans), as well as implicit claims such as the firm’s promises of good working conditions and job security, in return for their human capital investment in the firm. Their contractual relationship with the firm may influence whether and how they discipline or entrench managers. On the one hand, in a world of incomplete contracts, employees are vulnerable to opportunistic management behavior. They, therefore, have an incentive not only to protect their firm-specific investments but also to deter managers from appropriating the returns on their human investments in the firm. Prior empirical research provides some evidence that labor unions, representing the collective voice of employees, play a governance role in firm policies, such as reduc-

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<sup>1</sup><https://opportunity.businessroundtable.org/ourcommitment/>

<sup>2</sup>Several large index fund managers, including Larry Fink, head of BlackRock, also publicly embrace this new mindset, emphasizing the importance of stakeholderism. <https://www.wlrk.com/webdocs/wlrknew/AttorneyPubs/WLRK.26358.19.pdf>

<sup>3</sup>See, for e.g., Faleye, Mehrotra, and Morck (2006), Fauver and Fuerst (2008), Mehran and Stulz (2007), Dyck, Volchkova, and Zingales (2008), DeFond and Zhang (2014), Leuz and Wysocki (2016), Stanfield and Tumarkin (2018), among others.

ing executive compensation (Huang, Jiang, Lie, and Que, 2017), cash balances (Klasa, Maxwell, and Ortiz-Molina, 2009), and tax aggressiveness (Chyz, Leung, Zhen, and Rui, 2013). However, this governance effect on firm policies is often interpreted as an outcome of corporate strategic tactics to thwart employees' actions to the benefit of shareholders. On the other hand, employee opportunism can potentially hinder employees from disciplining managerial behavior. Employee-management alliances are one example that potentially drives employees' opportunistic actions, thereby not only undermining their governance role but also inducing a suboptimal wealth transfer from shareholders to employees and management (e.g., Pagano and Volpin, 2005; Cronqvist et al., 2009; Masulis, Wang, and Xie, 2019). One important caveat on most of these empirical studies is that their findings reflect confounding joint hypotheses of the conflicts of interest between employees and shareholders and between employees and management.

To circumvent the joint hypothesis problem, our study employs opportunistic insider trading activity as a natural setting to test the role of employees in corporate governance. Insiders' trading is an action often perceived as self-serving, and their trades on private material information are typically viewed as undesirable by stakeholders, including employees and shareholders. We focus on managers' personal decisions rather than on firm policies to allow us to isolate the employee-management effect from any outcome associated with the employee-shareholder conflict of interest. Our research design is based on the empirical literature that corporate insiders trade on private information and earn abnormal returns (e.g., Lakonishok and Lee, 2001; Jeng, Metrick, and Zeckhauser, 2003; Brochet, 2010). We employ two insider trading measures to test the disciplining hypothesis: (i) the number of opportunistic insider trades after removing trades based on predictable patterns of past trading (*OpTrades*) (Cohen, Malloy, and Pomorsky, 2012 (CMP)), and (ii) the alpha earned during the 180-day window after an insider's buy or sell transaction (*OpProfits*) (Jagolinzer, Larcker, and Taylor, 2011). These measures allow us to determine the extent to which insider opportunism is associated with the strength of labor voice, where labor power is proxied by a labor union indicator and a firm's labor unionization rate (*LVoice*) (e.g., Hamm, Jung, and Lee, 2017; Huang et al., 2017).

Based on a sample of 33,515 firm-year observations or 5,054 unique firms over the period from

1996 to 2017, we find that *LVoice* is negatively related to both insider trading frequency and profitability even after controlling for various firm-specific variables that are good predictors of insider trading activity. The results suggest that insiders in unionized firms conduct 7.0%-7.9% less opportunistic trading relative to their peers in nonunionized firms. Correspondingly, the annualized abnormal stock returns of insider trades decrease by 9.5% in unionized firms compared to those in nonunionized firms. Additionally, we provide some evidence of employee opportunism compromising employees' governance role but only when they are also shareholders of the firm. Such opportunism arises from employees receiving excess wages and employees allying with management when their firm is susceptible to takeover bids. Therefore, our current approach alleviates these shareholder-management and employee-management conflicts.

Our baseline finding of a negative association between labor voice and opportunistic insider trading might not necessarily reflect a causal relation. It is plausible that omitted variables and the potential endogeneity of union status make it challenging to disentangle causal effects from other unobserved confounding factors (Hirsch, 1997). To address these concerns, we conduct the following three tests. First, we use a regression discontinuity design (RDD) that relies on exogenous variation generated by voting outcomes of firms' new unionization proposals that pass or fail by a small margin of votes around the actual threshold hurdle (e.g., Bradley, Kim, and Tian, 2016). The results show that winning a union election engenders a reduction in both opportunistic insider trades and trading gains. Second, we use the variation of whether states have adopted the Right-To-Work (RTW) laws as a quasi-natural experiment to examine labor power in opportunistic insider trading. RTW laws offer workers a choice to opt-out of joining or paying dues to unions, and hence, such laws would weaken organized workers' voice. In our third identification strategy, we employ an instrumental variable approach and use the proportion of female workers employed in occupations that require heavy work in a given sector as an exogenous source of an increase in the unionized labor force.<sup>4</sup> These three identification strategies provide reinforcing evidence of a causal attenuating impact of labor voice on opportunistic insider trading behavior.

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<sup>4</sup>Bureau of Labor Statistics (BLS) provides the industry-level female participation information in the following five occupations: (1) management, professional, and related occupations, (2) service occupations, (3) sales and office occupation, (4) natural resources, construction, and maintenance occupations, and (5) production, transportation, and material moving occupations. We consider occupations classified under (4) and (5) as heavy work occupations.

Further analyses suggest that our key finding is also robust to an alternative proxy for opportunistic insider trading (i.e., a measure proposed by Ali and Hirshleifer (2017)), an alternative proxy for *LVoice* (i.e., an industry-level unionization rate), and the intensity of labor voice as measured by labor strikes. The deterrent effect of labor voice on insider trading remains unaffected even after controlling for board characteristics, including board size and the extent of board independence. Additionally, our cross-sectional analysis indicates that labor’s disciplining impact is more pronounced in unionized firms that operate in a competitive market, are reliant on more skillful employees, are financially constrained, or actively manage their earnings.

Having established the restraining effect of employees on opportunistic insider trading, we now explore three economic mechanisms by which organized labor influences management. The first mechanism is through a firm’s environmental and social initiatives. Socially responsible firms work to ensure that their employees have fundamental labor rights, to promote management-labor dialogue, to develop environmental, social, and governance (ESG) initiatives, and to discuss employee working conditions and other issues. Employees, in turn, embrace their firm’s commitment to these ESG values that align with their own. We expect that organized labor would play a more active governance role in socially responsible firms, and our findings lend support to this prediction.

Another mechanism stems from unions’ shareholder role through union pension funds. Union pension funds are identified to be the most vocal shareholder class (Gillan and Starks, 2007). Prior research shows that union pension funds cast proxy votes that pursue workers’ interests, challenging the governance practices of companies (Anabtawi and Stout, 2008; Agrawal, 2012). The voting campaign initiated by union pension funds may receive support from other socially-conscious shareholders whose goals are not merely to maximize profits but to promote corporate social responsibilities. Therefore, we anticipate that active union pension funds pose a potent threat to unethical management behavior – opportunistic insider trading. Consistently, we demonstrate that the disciplining effect of organized labor on insider trading is stronger for firms in which union pension funds raise shareholder proposals.

The third mechanism is through an external disciplining effect. Prior research suggests that news media brings governance issues to the attention of various stakeholders. For example, the

media exerts a disciplining role, including revealing governance violations (Dyck, Volchkova, and Zingales, 2008), pressuring managers to act in a socially responsible manner (Dyck and Zingales, 2002), monitoring executive compensation (Kuhnen and Niessen, 2012), and restraining insiders' profits (Dai, Parwada, and Zhang, 2015). We show that both opportunistic insider trading activity and profits are significantly lower in unionized firms operating in the same location as a Dow Jones news broadcasting office than those that are not. Our analysis also exploits the Democratic Party's platform on labor unions – protecting workers' rights and supporting the labor movement. Our results show statistically significant reductions in insider trades and profits in periods when the US president is a Democrat, consistent with the notion that the Democratic Party is more supportive of organized labor.

Lastly, we investigate the economic implications of labor's role in restricting management opportunism and improving corporate governance. We document reduced likelihood of illegal insider trading occurrence in unionized firms, implying increased personal litigation risk of opportunistic insiders, consistent with labor's governance. Further, to the extent that unethical management behavior reflects weak corporate governance (Biggerstaff, Cicero, and Puckett, 2015; Ali and Hirschleifer, 2017), our evidence shows favorable effects of unionized labor on total factor productivity and firm performance through improving corporate governance. Finally, the results suggest that insider trades from unionized firms have lower future stock return predictability than those from their nonunionized counterparts, implying that such trades reveal limited private information to market participants.

Our study contributes to several strands of literature. There is a growing emphasis on human capital in accounting and finance research (Rajan and Zingales, 1998; Zingales, 2000; Dyck, Morse and Zingales, 2010; and Edmans, 2011). Often recognized as “[t]he most valuable asset,”<sup>5</sup> labor is emerging to play a paramount role in corporate governance. For example, Bowen, Call, and Rajgopal (2010) and Dyck, Morse, and Zingales (2010) explore fraudulent corporate activities and demonstrate employees as an essential control mechanism in uncovering corporate financial misdeeds. However, one shortcoming of employee whistleblowing studies is the scarcity of employee

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<sup>5</sup>See *The Age of Discontinuity: Guidelines to Our Changing Society* by Peter F. Drucker.

whistleblowers.<sup>6</sup> As a result, these few influential outliers might exaggerate the governance role of employees. Worker representation on board, often labeled as codetermination, appears to be the most direct approach to provide labor a voice (Lin, Schmid, and Xuan, 2018). Yet, codetermination is only a European phenomenon and thus hard to generalize in other jurisdictions. Furthermore, the existing literature also inquires about the corporate governance role of labor power through employees with equity ownership. Much evidence suggests that employee ownership is exploited to advance employees' private benefits by employees forming alliances with managers to the detriment of shareholders.<sup>7</sup> Inevitably, the prevailing employee opportunism clouds the labor's ability and incentives to monitor managers. Our work addresses these gaps in the literature by using firm unionization as a collective labor voice. It not only explores the causal relationship between firm-level unionization and opportunistic insider trading but also shows three economic mechanisms that explain how organized labor force can exert its influence upon management.

Our research is also related to the longstanding literature on labor unions. Early labor studies portray unions as an implicit tax on corporate income;<sup>8</sup> the enhanced bargaining power through unions enables employees to extract above-market rents out of shareholders. In contrast to these earlier findings, our study documents a value-enhancing impact of labor unions through its restraining effect on opportunistic insider trading. Compared with recent studies that examine corporate outcomes of labor unions, our focus on management's trading activities effectively disentangles the conflict of interests between managers and employees from the conflict of interests between shareholders and employees. Our evidence on the governance role of unionized employees highlights the bright side of labor unions on value creation and shareholders' wealth, enriching the understanding of the role of unionized labor in modern corporate life under a renewed corporate objective function where constituencies matter.

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<sup>6</sup>Given that employees face high costs, like being fired when blowing the whistle on their employer, it is not surprising that only a small sample of employee allegations on corporate financial conduct is available for analyses. Often employees expose corporate financial fraud to avoid the legal liability for being involved in fraud (Dyck, Morse, and Zingales, 2010).

<sup>7</sup>Several theoretical and empirical studies highlight the implicit alliance between employees and managers and pinpoint equity ownership as a catalyst for such alliances. Theoretical analysis, including Holstrom (1982), Oyer (2005), Pagano and Volpin (2005), and Bova and Yang (2017), offers insightful reasonings that underlie the lack of incentive effects of employee equity ownership. Faleye, Mehrotra, and Morck (2006), Cronqvist et al., 2009 and Masulis, Wang, and Xie (2019) provide empirical evidence on the rise of such alliances.

<sup>8</sup>See, for e.g., Freeman and Medoff (1984), Addison and Hirsch (1989), Hirsch (1991), and Cullinan and Knoblett (1994).



Finally, we add new evidence to the insider trading literature. Past studies that explore the determinants of insider trading often focus on different identities of shareholders, including institutional investors, block shareholders, short sellers, and security analysts. We expand this literature by showing a non-negligible effect of organized labor acting as a deterrent to opportunistic insider trading activity and profitability. More broadly, our findings contribute to an ongoing debate on the relative importance of shareholders to other stakeholders in corporate decisions. A related study by Gao, Lisic, and Zhang (2014) reports that executives of socially responsible firms refrain from informative trading and are less likely to trade on future corporate news. Our analysis expands their work by identifying a crucial specific stakeholder group that constrains both opportunistic and illegal insider trades. Labor’s deterrence ability adds novel evidence to recent studies that explore the nature and detection of illegal insider trading (Ahern, 2017; Cline and Posylnaya, 2019; Kacperczyk and Pagnotta, 2019).

The remainder of the paper is organized as follows. In the next section, we place our study in the context of the existing literature and develop testable hypotheses. Section 3 describes the data and formation of our sample used in our empirical analyses. Section 4 discusses our main empirical results with confirming evidence from various identification strategies conducted, while Section 5 explores the different economic mechanisms through which labor voice plays a role in deterring insider trading activity and reducing insider profitability. Section 6 evaluates the economic consequences of the disciplining effect of labor voice, followed by a conclusion.

## **2. Related literature and hypothesis development**

Labor is one of the key stakeholders in a firm. Substantial research on labor focuses on collective labor voice in the workplace through unions. Unions assume a primary role in protecting the collective interest of member employees and thus have a responsibility to ensure that firms develop and maintain viable businesses and adequately disclose any information about their ability to cover wages and other employee benefits (Ogden and Bougen, 1985; McConnell, 1989). The earlier literature emphasizes the cost effects of unionized labor by showing that unionized firms have significantly higher labor costs and lower profits than their nonunionized counterparts (e.g., Jensen

and Meckling, 1976; Freeman and Medoff, 1984; Hirsch, 1991, 1992; Bronars and Deere, 1993).

In recent years, the corporate purpose is being reoriented away from shareholder primacy to a broader societal objective for the benefit of all stakeholders. Along with this shift, there is a growing number of studies that also recognize employees as key organizational assets rather than expendable commodities (Bae, Kang, and Wang, 2011; Edmans, 2012). Our study builds on the stakeholder framework and looks at one particular value-enhancing impact of employees as stakeholders in serving as an important control mechanism that limits managerial entrenchment. Workers' daily involvement in their firm enables them to access material private information about business operations and keep a close watch on management activities.<sup>9</sup> Compared with nonunionized counterparts, unionized employees can exert a powerful influence on management because of their ability to bargain collectively and to hold corporations accountable through disruptive actions, such as strikes. Also, to protect their undiversified human investment in the firm employing them, employees have strong incentives to monitor their managers, ensuring that managers' interests are aligned with theirs (Titman, 1984).

The existing empirical research, thus far, provides some insights into the influence of organized labor on corporate governance issues. For example, Klasa, Maxwell, and Ortiz-Molina (2009) find less cash holding in more unionized industries as firms in such sectors safeguard corporate income from unions' demand. Chyz, Leung, Li, and Rui (2013) report reduced tax aggressiveness in unionized firms, but are unable to draw an inference of whether their evidence is due to the increased unions' monitoring or to the decreased returns from tax aggressiveness that prevent unions' rent extraction. DeAngelo and DeAngelo (1991) and Huang, Jiang, Lie, and Que (2017) show evidence of a reduction in executive pay in unionized firms, especially around labor contract negotiations as a strategic response to unions' demand to the benefit of shareholders. Despite these empirical results, the governance effects of organized labor still remain unclear. The reason is that any observed union effects on corporate decisions could arise from either shareholders' response to

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<sup>9</sup>Traditional finance theory (Jensen and Meckling, 1976) views firms as a nexus of contracts with fixed and residual claims on firm value. Since shareholders are the residual claimants and bear the high costs of governance malpractice, they ought to monitor management. However, one missing dimension in the shareholder-centric governance system is the cost of identifying and gathering relevant information. As suggested by Hayek (1945), employees can cull much relevant information as a byproduct of their routine work. Hence, employees face much lower information processing costs than shareholders in discovering corporate governance issues.

unions’ rent-seeking behavior or increased labor monitoring.

Our study directly examines labor influence in corporate governance. We investigate labor’s disciplining effect on opportunistic insider trading activities that derive from managers’ privileged access to firm-specific material information. While corporate policies often require shareholder or board approval, managers have more discretionary control over their personal trading accounts. Managers can extract rent for private benefits through trading, and such behavior raises a valid governance concern for all stakeholders.<sup>10</sup> Importantly, opportunistic insider trading provides an excellent setting to uncouple managers’ behavior from corporate decisions that are simultaneously affected by shareholders’ attempt to preserve their share of corporate income from labor and labor’s growing ability to influence corporate matters. Hence, we test the following hypothesis:

Hypothesis 1 (H1):        Organized labor reduces opportunistic insider trades and profitability.  
  (The disciplining hypothesis)

We further explore three possible economic mechanisms through which organized labor can exert a deterrent effect on opportunistic insider trading. The first internal mechanism arises from a firm’s social awareness. Socially responsible firms recognize the value of nonfinancial stakeholders, including employees. They take initiatives to enhance employee relations as well as their working environments. Prior studies argue that a firm’s commitment to employee welfares and more broadly their living environments build a corporate social reputation and cultivate trust between stakeholders (employees in our context) and management (e.g., Jones, 1995; McWilliams, Siegel, and Wright, 2006; Gao, Lisic, and Zhang, 2014). Thus, favorable employee relation policies in socially responsible firms are conducive to the governance role of organized labor in two ways: (i) employees feel comfortable to communicate their concerns with management in supportive working conditions, and (ii) management is more likely to act upon employee grievances in employee-friendly companies. It is reasonable to expect that organized labor has the confidence to speak to manage-

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<sup>10</sup>We acknowledge the counter-argument that highlights the benefits of insider trading. Evidence shows that allowing insiders to benefit from their information advantage in trading promotes more informationally efficient financial markets (Manne, 1966; Carlton and Fischel, 1983; Leland, 1992; George and Seyhun, 2002). However, our study attempts to single out opportunistic insider trading driven by their information advantage. The informed insider trading, viewed as an undesirable front-running practice, is prohibited by any regulations that aim to level the playing field for all market participants.

ment on governance issues without risking its job prospects in socially responsible firms. We term this view as an “employee welfare” channel and test the following hypothesis:

Hypothesis 2a (H2a): The disciplining effect of labor voice on opportunistic insider trading is more pronounced in more socially responsible firms. (The employee welfare mechanism)

The second mechanism emerges from a union’s shareholder power through union-affiliated pension funds, an important group of vocal activist institutional investors (Gillan and Starks, 2007). Labor unions sometimes manage pension funds on behalf of member employees. When union funds hold shares of the employees’ companies, they gain their shareholder status to directly participate in corporate governance reforms. They not only raise shareholder proposals and vote on director elections but also use media to pressure the management (Yermack, 2010). Coupled with its shareholder power, organized labor can effectively scrutinize and discipline management misbehavior. Thus, we expect the restraining effect of organized labor on insider opportunism to be stronger in companies held by activist union funds, as detailed in the following hypothesis:

Hypothesis 2b (H2b): The disciplining effect of labor voice on opportunistic insider trading is more pronounced in firms held by activist union-affiliated institutional investors. (The union fund mechanism)

Besides, unions are also capable of exercising their monitoring role through external channels, such as media coverage and political connections. Prior literature portrays unions as the most vocal actors in corporate governance relative to shareholders, analysts, and auditors (e.g., Schwab and Thomas, 1998; Dyck, Morse, and Zingales, 2010). Anecdotal accounts show that unions voice their opinions strongly through union websites, media, and politicians. For e.g., on the website of AFL-CIO, the largest federation of unions in the US, there is a “corporate greed” section, exposing questionable corporate and management activities such as insider trading. In Navient’s insider trading case, unions first released such information to news channels. Such news coverage subsequently caught a Democratic senator’s attention,<sup>11</sup> who called for a formal SEC investigation

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<sup>11</sup><https://www.marketwatch.com/story/elizabeth-warren-calls-navient-scammers-after-student-loan-giant-celebrates-making-the-fortune-500-2019-05-17>.

into the company’s insider trading allegation. This example vividly illustrates unions’ inherent ability to mobilize external resources to publicly exposing management misconduct. Work to date demonstrates the governance role of media in various corporate governance issues, including executive compensation (Core, Guay, and Larcker, 2008) and corporate governance violations (Dyck, Volchkova, and Zingales, 2008). In our context, the negative media coverage on managerial wrongdoings jeopardizes management reputation and raises its litigation risk. Meanwhile, unions, representing working-class citizens, are a visible political force ever since the union-enabling legislation (National Industrial Recovery Act) in 1933. They actively engage in partisan politics and lobby for broad-based labor market policy (Freeman and Medoff, 1984). Unions could wield their political influence to condemn unethical management behaviors broadly through politicians’ voices. If the external disciplining channel holds, we expect that corporate insiders are more likely to refrain from opportunistic insider trading when unions have more convenient access to media networks and are prone to receive greater political support. This channel gives rise to the following hypothesis:

Hypothesis 2c (H2c): The disciplining effect of labor voice on opportunistic insider trading is stronger in firms in which unions can garner media attention and/or political support. (The external disciplining mechanism)

### **3. Data and descriptive statistics**

#### *3.1. Sample construction*

This study employs data from several different sources: (i) firm-level unionization information from firms’ 10-K filings; (ii) US insider trading data from Thomson Reuters insiders filing database; (iii) establishment-level union election data taken from the National Labor Relations Board (NLRB); (iv) labor strikes information from Bloomberg BNA Labor Plus database; (v) financial information from Compustat; (vi) stock trading information from CRSP; (vii) financial analyst data from the I/B/E/S database; and (viii) data on institutional ownership from Thomson Reuters’ Institutional Holdings (13F) database.

Our primary sample intersects these databases with non-missing values for our main variables of interest. We exclude financial and regulated utility firms (SIC codes 4900-4999 and 6000-6900).

Our merging of databases yields a final sample of 33,515 firm-year observations, consisting of 5,054 unique firms over the period between 1996 and 2017. This sample period is bounded by the availability of firms' 10-K filings and insider trading information, and 1996 is the year where a substantial number of firms had their 10-K filings made available through SEC EDGAR. The definitions of all the key variables are depicted in Appendix A.

### *3.2. Measuring labor voice*

Our study employs a firm-level unionization ratio as a proxy for labor voice in corporate governance. We parse this information from firms' 10-K filings filed to SEC EDGAR from 1996 to 2017. Following Hamm, Jung, and Lee (2017), our search algorithm first identifies the 10-K filings that contain several keywords or phrases describing firms as having a nonunionized workforce. Examples of these expressions include (i) "None of our employees are subject to/covered by/presented by labor unions;" (ii) "was/were not subject to/covered by/presented by a collective bargaining agreement;" (iii) "not a party to a collective bargaining/labor union;" and (iv) "no union/unionized employees/collective bargaining agreement." If any of these expressions are present in a firm's 10-K filings, we consider the firm as nonunionized. For the remaining companies, we further look into Item 1 of their filings, where it typically contains information on union memberships. In Item 1, we extract sentences that include variations of keywords such as "union," "collective(ly) bargain," "collective bargaining," "labor/employee/worker organization," and "work council."<sup>12</sup> We then locate the firm-level unionization ratio within these sentences. While most firms explicitly report the fraction of unionized employees, some firms disclose the number of unionized employees. In the latter case, we scale the number of unionized employees reported in the 10-K filing by the total number of employees; this information is downloaded from Compustat.

As shown in Table 1, unions are present in approximately 19% of our entire sample (there are 6,396 firm-years with unions and 27,119 firm-years without unions), comparable to the statistics reported in Hamm, Jung, and Lee (2017). The fraction of unionized employees in the union firms is fairly high, with a mean of 0.206 and a median of 0.140.

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<sup>12</sup>We exclude certain cases where the word "union" does not refer to labor unions. Examples are European union, Soviet union, credit union, union squares, and union banks.

### 3.3. Measuring opportunistic insider trading

We retrieve information on insider trading from Thomson Reuters’s insiders filing database. Following prior literature, we focus on open-market insider transactions. We then filter out the following types of transactions: (i) “large” shareholders with more than 10 percent of a firm’s stock, (ii) any traded price of less than \$2 or those with less than 100 shares, (iii) any traded price outside the range of daily highs and lows on the transaction date, and (iv) the number of shares traded exceeding the daily trading volume or the number of shares outstanding in CRSP.

We construct two measures of opportunistic insider trading. The first measure, frequency of opportunistic insider trading (*OpTrades*), is derived from CMP’s differentiation of opportunistic versus routine insider trading. Opportunistic insider trades are informative of future firm performance, whereas routine trades contain no useful information. Following CMP, we define a routine trader as one who trades in the same calendar month for at least three consecutive years, and an opportunistic trader as one who is a non-routine trader. *OpTrades* is computed as the natural log of one plus the number of purchases and sales placed by opportunistic traders in a given year. The other opportunistic insider trading measure is the insider trader’s abnormal returns variable (*OpProfits*), which is intended to assess the information content of their trades. Following Jagolinzer, Larcker, and Taylor (2011), we gauge insider trading abnormal returns by using the risk-adjusted abnormal stock returns from the Fama and French’s (2015) five-factor model estimated over the 180-day window following the insider transaction date. We multiply *OpProfits* by  $-1$  for sale transactions; *OpProfits* captures the capital gains after purchases and losses avoided by selling shares and thus reflects the information contained in the trades.

Our analysis also looks at trades of a selected sample of officers and directors who are close to their corporate operations. The officers include chief executive officer, chief financial officer, chief operating officer, chief information officer, chief operating officer, chief technology officer, executive vice president, officers (general), treasurer, divisional officer, president, corporate secretary, senior vice president, vice president, and assistant vice president.<sup>13</sup> Based on this subsample,

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<sup>13</sup>We exclude other related parties such as affiliates and beneficial owners, whose information is also contained in the Thomson Reuters database.

we then compute two similar opportunistic insider trading measures, namely, *OpTrades\_OD* and *OpProfits\_OD*.

Table 1 reports the distributions of the above four measures of opportunistic insider trades and abnormal returns. The yearly mean (median) log values of *OpTrades* and *OpTrades\_OD* are 2.652 (2.565) and 2.596 (2.565) for unionized firms, compared to 2.725 (2.708) and 2.682 (2.639) for their nonunionized counterparts. The p-values associated with our tests of their mean and median differences (Columns (12)-(13)) suggest that opportunistic insider trades and abnormal returns are statistically significantly lower in unionized than in nonunionized firms. We observe similar differential patterns in the means and medians of *OpProfits* and *OpProfits\_OD* between unionized and nonunionized patterns, indicating that opportunistic insiders from unionized firms tend to make less abnormal returns than their nonunionized peers.

### 3.4. Control variables

Drawn from prior insider trading literature (e.g., Lakonishok and Lee, 2001; Ke, Huddart, and Petron, 2003), we employ a list of firm-specific characteristics that are shown to affect insider trading of their company stock. For example, insiders are more likely to trade in liquid stocks and tend to adopt a contrarian trading strategy based on their private information about mispricing errors. We use share turnover as a proxy for stock market liquidity (*Turnover*), which is computed as the daily trading volume divided by the number of shares outstanding in the previous year. We use the recent stock return (*Return*) to control for the contrarian belief of insider trades and compute *Return* as a buy-and-hold stock return over the 240-trading day period ending one day before the first insider transaction in a given calendar year. We also take into account the variation in information asymmetry by controlling for institutional ownership (*IO*) and analyst coverage (*Analyst*). *IO* is the proportion of a firm's shares held by institutional investors in the previous year, whereas *Analyst* is the number of analysts following a company during the last year. Besides equity investors, debtholders can also monitor management and influence information asymmetry (Diamond, 1984; Ahn and Choi, 2009). Thus, we control for the implicit debt effect using financial leverage (*Leverage*), measured as the sum of long-term debt and current liabilities scaled by total



assets in the previous year. Lastly, our analyses also control for firm size (*Size*, computed as the natural log of stock market capitalization in the previous year) and book-to-market equity ratio (*BM*, computed as the book value of common equity to market capitalization). To alleviate the concern of outliers, we winsorize all continuous variables at the top and bottom 1% of the sample distribution.

As seen in Table 1, unionized firms tend to be less liquid and have a lower past-year return than nonunionized firms, but the former have higher analyst coverage, greater institutional ownership, more leverage, higher book-to-market ratio, and larger market capitalization. Two noteworthy observations emerge from Table OA1 of the Online Appendix, where we present the Pearson correlation coefficients between main variables at the firm level in Panel A and insider trade-level in Panel B. First, as a preliminary support of H1, we find a negative correlation between *LVoice* and each of the four insider trading measures; their correlation coefficients range from -0.036 to -0.026, all statistically significant at 1% level. Second, none of the variable pairs exhibit very high correlations (i.e., a correlation coefficient above 70%) except *Analyst* and *Size*, hence mitigating the multicollinearity concern.

## 4. Labor Voice and Opportunistic Insider Trading

### 4.1. Baseline evidence

In this section, we examine whether and how labor’s governance voice is related to insider trading activity by conducting the following baseline regression model,

$$\begin{aligned} \text{Opportunism}_{i,t} = & \alpha_0 + \beta_1 \text{LVoice}_{i,t-1} + \beta_2 \text{Turnover}_{i,t-1} + \beta_3 \text{Return}_{i,t-1} + \beta_4 \text{Analyst}_{i,t-1} \\ & + \beta_5 \text{IO}_{i,t-1} + \beta_6 \text{Leverage}_{i,t-1} + \beta_7 \text{Size}_{i,t-1} + \beta_8 \text{BM}_{i,t-1} + \epsilon_{i,t}, \end{aligned} \quad (1)$$

where the subscripts  $i$  and  $t$  index firms and years, respectively. *Opportunism* denotes our insider trading measures, namely, the frequency of opportunistic insider trades (*OpTrades* and *OpTrades\_OD*) and the profitability of insider trades (*OpProfits* and *OpProfits\_OD*). The term “OD” is used to designate trades made by corporate officers and directors, who have the decision-making authority over corporate affairs and possess direct access to non-public firm-level material infor-

mation.  $LVoice_{i,t-1}$  is the one-year lagged unionization ratio, which is defined as the fraction of unionized labor force in a firm. We select an extensive set of control variables, including stock turnover (*Turnover*), previous stock return (*Return*), analyst coverage (*Analyst*), institutional ownership (*IO*), financial leverage (*Leverage*), firm size (*Size*), and book-to-market ratio (*BM*). All our specifications include two-digit SIC industry and year fixed effects, unless otherwise indicated, and their standard errors are adjusted for heteroskedasticity and firm-level clustered. Eq. (1) is estimated at the firm level for *OpTrades* and *OpTrades\_OD* and at the insider transaction level for *OpProfits* and *OpProfits\_OD*. Results are shown in Table 2.

The table reveals a number of interesting findings. First, we find a consistently strong negative association between organized labor and opportunistic insider trading behavior. The estimates of *LVoice* are all negative and statistically significant at conventional levels. For instance, Column (1) shows that when *OpTrades* is used as the dependent variable, the coefficient of *LVoice* is -0.219 ( $t$ -statistic = -2.24), suggesting less opportunistic insider trading in the presence of organized labor. In terms of the economic significance, a one-standard-deviation increase in *LVoice* leads to a 2.6% ( $=0.219 \times 0.117$ ) decrease in *OpTrades*. In Column (2), we employ a *LVoice(Dummy)* variable to denote a unionized firm; *LVoice(Dummy)* equals one if the firm has unionized employees and zero if otherwise. The coefficient of *LVoice(Dummy)* is -0.070 ( $t$ -statistic = -2.43), an implication that opportunistic insiders in unionized firms cut back their trading activity by 7% more than those in nonunionized firms. In Columns (3) and (4), we concentrate on a subgroup of insiders who are more likely to have direct access to private information, namely, corporate officers and directors. The negative effects of organized labor on the trading frequency of this selected group are both statistically and economically stronger, compared to those estimated based on all insiders. The *LVoice* coefficient is 0.242 ( $t$ -statistic = -2.48) in Column (3), and the *LVoice(Dummy)* coefficient is 0.079 ( $t$ -statistic = -2.73) in Column (4).

We employ the insider trading profitability variable, measured by risk-adjusted abnormal returns (i.e., five-factor alphas), as an alternative proxy for insider opportunism in the last four columns and continue to find consistent results. With *OpProfits* as the dependent variable, we find that the coefficient of *LVoice* is -0.208 ( $t$ -statistic = -2.60) in Column (5) and the coefficient

of  $LVoice(Dummy)$  is -0.026 ( $t$ -statistic = -2.23) in Column (6). The economic magnitude of the governance effect of labor on insider trading is sizable. A one-standard-deviation increase in the firm unionization ratio is associated with a 0.024% reduction in daily alphas, equivalent to an 8.8% decline in annualized abnormal stock returns.<sup>14</sup> Insiders from unionized firms, on average, make 0.026% (9.5% annualized) less profits from trading compared to their peers from nonunionized firms. The estimation results are similar when we narrow our analysis to trades conducted by corporate officers and directors. The collective evidence in Table 2 lends support to H1 that labor plays a nontrivial role in corporate governance by restraining opportunistic insider trading.

The signs of the control variables' coefficients are largely consistent with those of prior literature. Stock turnover ( $Turnover$ ) is positively correlated with  $OpTrades$ , supporting the view that liquidity facilitates informed insider trading. The lagged stock return is positively correlated with the frequency of opportunistic insider trading and insider trading profits. Given the dominance of insider sales, this evidence confirms the contrarian trading strategy by insiders (Lakonishok and Lee, 2001; Piotroski and Roulstone, 2005). Insiders trade more frequently in firms with high institutional ownership, consistent with Fidrmuc, Goergen, and Renneboog (2006) that institutional investors are not effective managerial monitors but rather followers of information distilled from insiders. We observe less opportunistic insider trading activity in firms with large borrowings, highlighting the disciplinary effect of debtholders. The  $OpProfits$  variable declines in firms with high institutional ownership and broad analyst coverage, in accordance with the competition between informed traders (Frankel and Li, 2004; Massa, Qian, Xu, and Zhang, 2015). Finally, we observe more opportunistic insider trades in larger firms and firms with lower book-to-market ratio, consistent with findings in Frankel and Li (2004) and Massa, Qian, Xu, and Zhang (2015).

#### 4.2. *Employee opportunism*

Prior research suggests that there exists employee opportunism that potentially prevents employees from disciplining managerial actions and that private benefits, such as high wages and job security, are some potential drivers of employees' opportunistic behavior. Employees with equity ownership

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<sup>14</sup>The 0.024% reduction is calculated as the coefficient of  $LVoice$  (-0.208) multiplied by its standard deviation of 0.117. The annualized abnormal return reduction of 8.8% is equal to  $0.024\% \times 365$ .

can extract those benefits by forming alliances with managers (e.g., Kim and Ouimet, 2014; Masulis, Wang and Xie, 2019), thus undermining their disciplining role. While employee equity ownership can be typically seen as another measure of labor power in corporate governance, its governance effect is ambiguous. First, the broad-based employee equity ownership is often granted for non-incentive purposes, such as cash conservation (Bova and Yang, 2017), employee retention (Oyer, 2004), and an antitakeover device (Pagano and Volpin, 2005). Second, too many employees, each owning a small equity stake, give rise to a free-rider problem (Holstrom, 1982), which diminishes an employee's desire to put in the monitoring effort. Third, individual employees are reluctant to confront the management, owing to the high costs of doing so.

We first replicate our baseline regression analysis by using employee ownership in place of a labor voice measure. Following Bova, Dou, and Hope (2015), we define the employee ownership variable as the log of one plus the market value of total employee equity ownership divided by the firm's total employees in the previous year. The employee ownership information is from the employers' Form 5500 filings available at the US Department of Labor website. We next explore three sources of employee opportunism that can influence employees' disciplining effect, namely, the excess employee wage, employees' firm as a takeover target, and the firm's takeover vulnerability measure as proxied by the entrenchment index; the construction of these three employee opportunism measures is detailed in Appendix A. Results are presented in Table 3.

Compared to Table 2, Panel A of Table 3 reveals a much weaker but qualitatively similar result. The employee ownership displays a significantly negative association with the frequency of insider trades (Columns (1)-(2)) but not with insider trading profitability (Columns (3)-(4)). This finding may indicate that employees' opportunistic behavior undermines their disciplining role. Panel B of the same table lends support to the evidence of employees' opportunistic effect on insider trading. The interaction between employee opportunism and employee ownership is the primary variable of interest. When employees receive excess wages, and when their firm is vulnerable to or become a target for takeover, their governance effect on insider opportunism is attenuated. The interaction variable's coefficients are consistently positive across all specifications and are statistically significant, especially when insider opportunism is measured by insider profitability. In

Appendix Table OA2 of the Online Appendix, we report the results using *LVoice* as opposed to employee ownership but find no significant evidence of unionized labor opportunism.

In summary, our results show some evidence of employee opportunistic behavior when employees assume the dual roles of shareholders and employees. Our subsequent analysis only examines the effects of unionized employees on opportunistic insider actions to mitigate the simultaneous influence of employee shareholders.

### *4.3. Identification strategies*

We have, thus far, established a negative relationship between opportunistic insider trading and unionized labor, but this relationship might arise from omitted confounding factors or a reverse causality from insider opportunism to unionization. For example, opportunistic insider trades could signal uneven information distribution between employees and management and create a sense of unfair treatment to employees, prompting employees to join unions. In this section, we adopt three identification strategies to address the endogeneity concerns.

#### *4.3.1. Close-call labor union elections*

The first identification strategy relies on an RDD setting that utilizes a source of “locally” exogenous variation in firms’ unionization generated by union elections (Lee and Mas, 2012; Bradley, Kim, and Tian, 2016). During union elections, a simple majority (i.e., 50%) passing rule assigns a firm’s unionization status. Given the percentage vote for unionization in every union election, we can readily identify firms that pass or fail a small margin of votes around the 50% threshold. The original union elections data are hand-collected from the NLRB.<sup>15</sup> We set a 3-year time horizon in RDD tests. For firms that experience multiple elections over the 3-year window, we only retain the first election during this period. This data collection procedure results in a sample of 1,107 unique union elections from 1996 to 2015. More than a third of these elections vote in favor of unionization.

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<sup>15</sup>We first match the names of employers in the NLRB database with names shown in the CRSP Master Name File. For those elections that cannot be matched with the CRSP, we link the election data with the information on first-level subsidiaries in the Bureau van Dijk Osiris database. In the final step, we perform an internet search for the parent company of the NLRB employer from sources such as Bloomberg, Funding Universe, and Factiva to enlarge the universe of identifiable NLRB employers.

Our RDD employs a nonparametric and local linear estimation approach following the recommendation of Gelman and Imbens (2019). Since the inclusion of other observable covariates are unnecessary for identification in RDD, we specify the local linear estimation model without including any control variables as follows:

$$\begin{aligned} \text{Opportunism}_{i,t+N} = & \alpha_l + \tau \text{Pass}_{i,t} + \beta_l (\text{Vote}_{i,t} - c) + (\beta_r - \beta_l) \times \text{Pass}_{i,t} \times (\text{Vote}_{i,t} - c) \\ & + \epsilon_{i,t}, \end{aligned} \tag{2}$$

where  $i$  indexes firms,  $t$  indexes time, and  $N = 1, 2$ , or  $3$ .  $\text{Pass}$  is an indicator variable that takes the value of one if the union wins the election and zero if otherwise. The coefficient of interest is  $\tau$ , which captures the discontinuity at the majority threshold. The fraction of votes ( $\text{Vote}$ ) lies between  $(c - h)$  and  $(c + h)$  with  $c = 50\%$ , and  $h$  represents the optimal bandwidth based on Calonico, Cattaneo, and Titiunik’s (2014) data-driven selection procedure. The interaction between  $\text{Pass}$  and  $(\text{Vote}_{i,t} - c)$  allows the slope to vary on either side of the cutoff (Lee and Lemieux 2010).

An important assumption of RDD is that there should be no pre-existing discontinuity in other covariates at the cutoff threshold. The passage of union elections would not be viewed as a random assignment if it is somewhat associated with firm characteristics. We perform mean-comparison tests of the ex ante covariates of firms that fall in a narrow band of vote shares (45%–55%) around the majority passing threshold in Panel A of Table 4. The  $t$ -tests for differences in means suggest that all covariates except  $BM$  are statistically indifferent between firms with close election wins and those with close election losses. We then conduct a joint test on the discontinuity in covariates by estimating seemingly unrelated regressions of each covariate on the unionization indicator ( $\text{Pass}$ ) and the voting share ( $\text{Vote}$ ). The Chi-square test for the hypothesis that the coefficients of  $\text{Pass}$  are jointly equal to zero reports a  $p$ -value of 0.339. Hence, we cannot reject the no discontinuity hypothesis in other nonunion covariates, confirming that our election sample satisfies the randomness assumption.

We proceed to test the difference in opportunistic insider trading activity between unionized and nonunionized firms over a three-year window in the wake of union elections in RDD under data-driven optimal bandwidths. To start, Figure 1 provides a visual confirmation of insider reactions to the outcome of union elections in their firms. The coefficient of  $\text{Pass}$  is negative across all columns

from one-year to three-year horizons following union elections. While it is less robustly significant when *Opportunism* is measured by insider trades in Columns (1)-(6) of Panel B, the *Pass* coefficients are all statistically significant when *Opportunism* is measured by insider trading profitability in Columns (7)-(12). Our unreported results are qualitatively similar when we perform RDD tests in higher-order (i.e., quadratic and cubic) polynomial regressions. The overall RDD results support a negative and causal effect of unionization in deterring opportunistic insider trading.

#### 4.3.2. *The adoption of the Right-to-Work (RTW) law*

Motivated by Matsa (2010), our second identification strategy uses the cross-state adoption of RTW laws as an exogenous shock to firm-level unionization ratios. The RTW legislation outlaws contractual agreements between employers and labor unions, which require employees to join or pay for the costs of union representation. The passage of this legislation reduces the amount of funding available to support unionized employees and expose unions to a free-rider problem, where nonunionized employees can still benefit from the actions of unions without paying union dues. Therefore, the RTW law makes union participation economically less attractive to employees, weakening unions' bargaining power (Ellwood and Fine, 1987). We anticipate that the RTW law's adoption would hurt union membership for firms located in RTW adopted states (the treatment group). In line with H1, one would expect an increase in opportunistic insider trading among treatment firms following the passage of the RTW law.

We empirically investigate H1 using this natural experiment in a difference-in-differences (DiD) framework. Our treatment group consists of firms (both unionized and nonunionized) located in states that adopted RTW laws during our sample period from 1996 to 2017. These states, in a time order, include Oklahoma in 2001, Indiana in 2012, Michigan in 2012, and Wisconsin in 2015. We then implement a two-step matching procedure to select the control group. First, for each state that adopted the RTW law (the treatment state), we match it with three control states that have not adopted the law during our sample period but have the closest labor force scale. State-level labor force statistics are retrieved from the US Department of Labor website. In the next step, each treatment firm is paired up with five firms from the control states that are in the same industry and

have the closest previous-year’s stock market capitalization. We also restrict our sample to three years before and after the corresponding adoption year to better detect insider trading variation due to the chosen events. We formally test the variation in insider opportunism around the RTW law adoption in a DiD setting specified below:

$$Opportunism_{i,t} = \alpha_0 + \beta_1 RTW_{i,t} \times Post_{i,t} + \beta_2 RTW_{i,t} + \beta_3 Post_{i,t} + \gamma' X_{i,t-1} + \epsilon_{i,t}. \quad (3)$$

$RTW_{i,t}$  is an indicator variable that takes the value of one if firm  $i$  is located in the RTW adopted state and zero if otherwise. The variable  $Post_{i,t}$  is a time indicator which equals one if the firm-year observation is after the RTW adoption and zero if otherwise; this variable serves as a counterfactual variable for the control firm and is coded one if the state of the corresponding treatment firm adopted the RTW law and zero if otherwise.  $X_{i,t}$  is a vector of control variables as specified in our baseline Eq (1). Our interest lies in the interaction between  $RTW$  and  $Post$ . In Panel A of Table 5, we first compare the various firm characteristics between treatment and control firms and show that there are no fundamental differences between the two, confirming the validity of our matching approach. Next, we estimate the DiD Eq. (3) in Panel B and find consistent evidence of a positive and significant coefficient on  $RTW \times Post$ , regardless of the insider trading proxies, suggesting an increased opportunistic insider trading activity in treatment firms after the state adopted the union-weakening RTW law.

Finally, we also substantiate the above two endogeneity tests with an IV approach, where firm unionization is treated as endogenous and is instrumented with the industry-level proportion of female workers employed in heavy work occupations (*HeavyWork*).<sup>16</sup> Results, reported in Table OA3, indicate a positive and statistically significant coefficient on *Heavywork* in the first stage estimations across all insider trading measures (i.e., *OpTrades*, *OpTrades\_OD*, *OpProfits*, and *OpProfits\_OD*), consistent with our prior. More importantly, after controlling for endogeneity

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<sup>16</sup>The information on female participation by occupation and sector comes from the Bureau of Labor Statistics (BLS) and is available at <https://www.bls.gov/cps/tables.htm>. The reported occupations include: (1) management, professional, and related occupations, (2) service occupations, (3) sales and office occupations, (4) natural resources, construction, and maintenance occupations, and (5) production, transportation, and material moving occupations. We define occupations (4) and (5) as the heavy work occupations and aggregate the number of female employees in these two occupations and divide it by the total number of employees in the corresponding industry. Determined by the BLS data, our industry classification here follows two-digit NAICS codes. The selection of this instrument builds on the recent dominant position of women in the unionized workforce, especially those employed in occupations that require heavy work (Jones, Schmitt, and Woo, 2014). We anticipate a higher unionization ratio in firms operating in the heavy work sectors that employ more female employees.



in the first stage, the coefficient on  $\widehat{LVoice}$  still remains negative and statistically significant, irrespective of the measure for insider trading.<sup>17</sup>

#### 4.4. Additional tests

In this section, we validate the robustness of our primary findings. We replicate the main analysis with alternative measures of insider trading and unionization rates, during labor strikes, and by accounting for additional control variables.

##### 4.4.1. Alternative measure of opportunistic insider trading

Ali and Hirschleifer (2017) offer an alternative definition of an opportunistic insider by attributing opportunism to a managerial trait. The basic idea is to identify insiders who can make high profits from their trading prior to quarterly earnings announcements (QEA). Their analysis shows that such insiders can generate robust trading profits even outside the pre-QEA periods. For robustness, we employ Ali and Hirschleifer’s approach in identifying opportunistic insiders and calculate the profits of pre-QEA insider trades that occurred during the 21 trading days before QEA, excluding the last two days before QEA. Insiders are then ranked into quintiles based on the average profitability of all their past pre-QEA trades, measured by market-adjusted abnormal stock returns in the five-day window centered at QEA. Similar to theirs, we use the *Fraction of Quintile 5 Insiders*, calculated as the ratio of the number of insiders whose pre-QEA profits are in top quintile (Quintile 5) to the total number of insiders as an alternative measure of opportunistic insider trading. The fraction of opportunistic officers and directors is defined similarly. Given the bounded nature of this new insider trading variable, we re-estimate our baseline model using a Tobit regression.

As evident in Columns (1)-(4) of Panel A, Table 6, the coefficient of *LVoice* is persistently negative and statistically significant when the *Fraction of Quintile 5 Insiders* is used as the dependent variable without and with control variables included. The finding of an inverse relationship between labor strength and opportunistic insider trading further substantiates our crucial evidence.

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<sup>17</sup>The  $p$ -values of the Hausman test are no greater than 5%, indicating that the 2SLS regression is more appropriate than the OLS regression.

#### 4.4.2. *Alternative measure of LVoice*

We also repeat our baseline analysis using the industry-level unionization data. We follow Hillary (2006) and Hamm, Jung, and Lee (2017) to generate the firm-level unionization rate from the product of the proportion of union members in the firm's industry and the firm's labor intensity, where labor intensity refers to the total number of employees scaled by total assets. The industry unionization ratio is available from the Union Membership and Coverage Database.<sup>18</sup> Panel B of Table 6 shows a negative and statistically significant  $LVoice_{Ind}$  coefficient across the four different insider trading variables, reinforcing our baseline results.

#### 4.4.3. *Intensity of labor voice – labor strikes*

We examine insider trading activities during labor strikes when monitoring incentives of organized labor are supposed to be most active. The strikes data are collected from Bloomberg BNA (i.e., The Bureau of National Affairs) Labor Plus database, which compiles a detailed history of US labor strikes information from public resources, such as union or BNA publications, government reports, and newspapers. The database publishes the names of employers, beginning and ending dates, as well as the number of participating employees in labor strikes since 1990. We manually match employer names in the labor strikes data with our sample of company names from the Compustat. This matching procedure results in 181 events during our sample period. We then create a dummy variable, *Strike*, that takes the value of one for firm-years in which labor strikes occur and zero if otherwise. Panel C of Table 6 shows a consistently negative coefficient on *Strike* after controlling for *LVoice* and other firm characteristics, independent of the insider trading measure employed. In terms of the economic magnitude, the opportunistic insider trading activity declines by 21.7% during strikes; similarly, insider trading profitability shrinks by 10.5% during strikes. The strong economic impact of labor strikes on insider opportunism concurs with the rising tension between management and labor during strikes.

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<sup>18</sup>The Union Membership and Coverage Database is constructed by Hirsch and Macpherson (2003). This database contains the information on the industry-specific union membership, which is obtained from the monthly Current Population Survey (CPS) by the BLS (the details are available at [www.unionstats.com](http://www.unionstats.com)).

#### 4.4.4. *Additional control variables*

Labor force alone cannot determine the quality of corporate governance. The board of directors plays a vital part in the corporate governance system to ensure the alignment of interests between management and shareholders. To check whether board characteristics drive the governance effect of unions, we incorporate two widely studied board characteristics into our model, namely, board size (*BoardSize*) and board independence (*BoardInd*). Both variables are available from the Risk-Metrics database. *BoardSize* is defined as the natural log of the number of directors in a given year, whereas *BoardInd* is the proportion of independent directors in the boardroom. Panel D of Table 6 shows that while *BoardSize* is positively correlated with *OpTrades* and *OpTrades\_OD*, *BoardInd* bears a negative sign across all four insider trading measures. These results are consistent with existing studies and are in line with regulations that embrace board independence as an essential element for good corporate governance (e.g., Duchin, Matsusaka, and Ozbas, 2010; Linck, Netter, and Yang, 2008). Of particular interest is the coefficient of *LVoice*, which remains negative and statistically significant even after controlling for board size and independence. This evidence further confirms that labor is a powerful governance force and that its disciplining effect on opportunistic insider trading is not driven by board composition.

#### 4.5. *Cross-sectional analyses*

Our study also conducts cross-sectional analyses to determine whether and how the governance effect of organized labor is associated with firms in highly competitive product markets, firms that rely on labor skills, financially-distressed firms, and firms with an opaque information environment.

Prior research posits that the product market competition increases the bargaining power of labor unions because unionized firms likely concede to the union’s demand for fear of losing their market shares under labor strikes (Bastos, Kreckemeier, and Wright, 2010; Mukherjee, 2012). We test this conjecture in our context by employing the fluidity index (*Fluidity*) from Hoberg, Phillips, and Prabhala (2014) as a proxy for the intensity of product market competition and expanding our baseline Eq. (1) with *Fluidity* and its interaction with *LVoice*. Hoberg, Phillips, and Prabhala define *Fluidity* as a “cosine” similarity between a firm’s products and the aggregate changes in

its competitors' products, where a higher value implies an increased intensity of competition.<sup>19</sup> Panel A of Table 7 reports the estimation results. While the coefficient on  $LVoice \times Fluidity$  is consistently negative, it is statistically significant when  $OpTrades$  is employed as a proxy for  $LVoice$ . Hence, there is some evidence that a considerable market competitive threat strengthens the governance role of unions in restraining insider opportunism.

Firms' reliance on labor skills may vary with the type of products they produce. It is conceivable that the replacement costs of labor are much higher when a firm's production demands a specific set of labor skills. As a result, employees can exert a more considerable influence on management behavior in firms requiring skilled labor, compared to those that merely need unskilled labor. Following Ghaly, Dang, and Stathopoulos (2017), we employ the industry-level labor skill index,  $LSkill$ , as a proxy for a firm's dependence on skilled labor. This index is constructed based on the occupation-specific labor skill requirements data downloaded from BLS's Occupation Employment Statistics and the US Department of Labor. Our industry-level  $LSkill$  index is calculated as the average skill requirements across all occupations in the industry, weighted by the number of employees per occupation; its value ranges from one to five with a higher score indicating an industry's greater demand for skilled labor. We combine the  $LSkill$  data with our primary sample using the three-digit SIC codes before 2002 and four-digit NAICS codes after 2002. To evaluate the marginal impact of labor skill heterogeneity on the governance effect of labor, we expand the baseline regression model by including an interaction term between  $LVoice$  and  $LSkill$ . Results are highlighted in Panel B of Table 7. The coefficient of  $LVoice \times LSkill$  is negative and statistically significant when insider trades, while not insider profitability, are employed as the dependent variable, suggesting some evidence of a firm's reliance on skilled labor in strengthening the monitoring effect of labor.

Next, we study whether the effect of unions on insider trading activity differs across financially distressed and healthy companies. The rationale is that when firms are in distress, employees risk losing all their firm-specific human capital investment and future income streams that they would be entitled to if the firm stays solvent. We, therefore, anticipate a stronger monitoring

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<sup>19</sup>The fluidity measure is available at Hoberg-Phillips Data Library: <http://hobergphillips.tuck.dartmouth.edu/>.

effect of unions in financially troubled firms. We test this conjecture by conditioning the impact of unions on a firm’s financial distress risk, measured by Altman’s (1968) Z-score ( $ZScore$ ), where a higher score indicates better financial solvency. Panel C of the table presents empirical results in support of the amplifying effect of financial distress. The  $LVoice \times ZScore$  coefficient is positive and significant at the 10% level for the four different insider trading measures, consistent with an intensified monitoring effect of organized labor in financially distressed firms.

Finally, Hamm, Jung, and Lee (2017) document that managers tend to manipulate financial information and create an opaque information environment in an attempt to limit labor’s ability to understand the firm’s actual financial position. To preserve their bargaining power with the management, one would expect a stronger disciplining effort of labor on insider trading behavior in firms with less transparent financial information. That is, organized labor could compensate a firm’s financial opaqueness by scrutinizing insider trades. To investigate this issue, we follow Dechow, Sloan, and Sweeney (1995) and use the magnitude of accounting accruals ( $EM$ ) as a measure of earnings management, where a higher  $EM$  value suggests the lack of financial statement informativeness. Panel D of Table 7 reveals a consistent pattern in the moderating effect of the information environment. In the augmented baseline model with the interaction between  $LVoice$  and  $EM$  added, we find a negative and statistically significant coefficient on the interaction term. This finding suggests an increased disciplining effect of unionized labor on insider trading activity among firms characterized by opacity.

## 5. The Mechanisms

In this section, we explore the economic channels through which organized labor influences opportunistic insider trading activity. There are three potential channels: (i) the employee welfare mechanism that fosters open, internal communication between management and employees (H2a); (ii) the shareholder activism of labor union pension funds that allows organized labor to effectively raise their governance voice (H2b); and (iii) the external disciplining channel that creates an implicit negative publicity pressure on management (H2c).

### 5.1. *Employee welfare*

As stipulated in H2a, corporate social reputation manifests a firm’s engagements with nonfinancial stakeholders, especially its employees. Socially responsible firms that respect and protect labor voice would focus on improving communication between managers and employees as an essential step towards creating a cohesive and collaborative workplace. To test this hypothesis, we follow previous studies (e.g., Kruger, 2015; Lins, Servaes, and Tamayo, 2017) and measure corporate social responsibility (CSR) using the environmental and social components of a firm’s CSR rating. Our study employs firm-level CSR ratings from the MSCI’s Kinder, Lydenberg, and Domini (KLD) database. A firm’s environmental and social score is computed by summing the strengths and then subtracting the concerns related to its environmental and social dimensions. We then create a binary indicator, *EnvSoc*, that equals one if the firm’s environmental and social score is above the sample median in a given year and zero if otherwise. We examine the internal employee welfare channel by expanding the baseline regression with *EnvSoc* and its interaction with *LVoice*. The results, as shown in Panel A, Table 8, indicate a negative and statistically significant coefficient on  $LVoice \times EnvSoc$  across all insider opportunism measures. We further narrow our focus on a firm’s commitment to its employees only by constructing an employee relation score as we have done for the environmental and social aspects. A binary indicator, *Employees*, equals one if the firm’s employee relations rating exceeds the sample median, and zero if otherwise. The coefficient of  $LVoice \times Employees$  is also negative and statistically significant. Taken together, the overall evidence is in accord with H2a that improving employee welfare in the workplace strengthens the organized labor’s ability to deter opportunistic insider trading.

### 5.2. *Union-affiliated pension funds*

H2b asserts that organized labor can directly get involved with disciplining management through the shareholder activism of union pension funds. To test this hypothesis, we extract the proxy voting data of union-affiliated funds from the Institutional Shareholder Services (ISS) database. After merging our sample with the ISS data, the final sample size reduces dramatically for two reasons: (1) the ISS database becomes available only from year 2006; and (2) it covers a much

smaller universe of public companies compared to our original sample. Nevertheless, this smaller sample should offer us a platform, albeit weaker, to test the impact of union members' shareholder activism through pension funds. To conduct this test, we include a new dummy variable,  $UFund$ , in the baseline regression model;  $UFund$  equals one if the union pension fund initiates a shareholder proposal in the previous year and zero if otherwise. Our interest lies in the interaction variable,  $LVoice \times UFund$ . Panel B, Table 8 shows a negative and statistically significant coefficient on  $LVoice \times UFund$ , suggesting a more pronounced disciplining effect of organized labor in firms with activist union funds. This evidence contrasts with Agrawal (2012), who shows that union pension funds tend to pursue worker interests rather than maximizing shareholder values. Instead, our findings suggest that union fund activists align their interests with those of other shareholder activists when it comes to disciplining unethical management activity, consistent with the argument made by Schwab and Thomas (1998).

### 5.3. External disciplining mechanisms

To explore the third channel, we introduce two indicator variables to reflect a union's influence on insider trading through media and politics. We employ the presence of a major media distributor, Dow Jones Newswires, in the state where the firm's headquarters is located, as a proxy for the labor's access to media. There are eight Dow Jones broadcasting offices in the US, and we use the indicator,  $DowJones$ , to denote one if the firm is located in the same state as any of the eight news broadcasting offices and zero if otherwise. We extend the baseline regression by incorporating  $DowJones$  and its interaction with  $LVoice$ . The results shown in Panel C of Table 8 are weakly consistent with H2c. For instance, the coefficient of  $LVoice \times DowJones$  is statistically significant and negative at the 1% level only when opportunistic insider trades are employed as the dependent variable, as shown in Columns (1) and (3).

For decades, Democrats have stood alongside labor unions in defense of fair pay and economic security and strengthened workers' rights. In general, Democrats emphasize the government oversight of CSR-related issues, including the environment, anti-discrimination laws and their enforcement, and employee welfare (Hutton, Jiang, and Kumar, 2013; Giuli and Kostovetsky, 2014). In the 2007

Fleish-Hillard/National Consumers League survey, 96% of Democratic respondents believed that Congress should work to ensure companies address pressing social issues, compared to only 65% of Republican respondents.<sup>20</sup> It is plausible that unionized labor receives more political support when the Democratic Party rather than the Republican Party is in power. Accordingly, we anticipate a stronger governance effect of labor during Democratic rather than Republican governments. In what follows, our union political influence indicator, *Democratic*, is set to one if the observation is during the period when the US president comes from the Democratic Party and zero if otherwise. We examine the marginal effect of the political influence by interacting *Democratic* with *LVoice*. Panel C of Table 8 shows that estimates of the coefficients on  $LVoice \times Democratic$  are highly statistically significant and negative, suggesting a more pronounced governance effect of labor during Democratic presidencies. We interpret the evidence as consistent with unions’ implicit political power in restraining insider trading behavior.

## 6. Economic Consequences

In this section, we evaluate the economic consequences of the governance effect of organized labor on illegal insider trading, firm productivity and performance, and market participants.

### 6.1. *Illegal insider trading*

As one of the most vocal groups of stakeholders, employees could bring suspicious insider trading to light and considerably raise the personal litigation risk of managers who are trading opportunistically on private and material information through the above channels. Given the increased legal liability of opportunistic trading, we anticipate a deterrence effect of unionized labor on illegal insider trading activities. We test this prediction using manually-collected unlawful insider trading cases from the SEC website between 1996 and 2017. To ensure the broadest coverage, we retrieve a list of all the SEC Litigation Releases and associated SEC Complaints containing the terms “insider trading” and “10b(5)” (or “10b-5”). We then identify the insider names, their employment companies, and insider transaction dates from the sources. Only 287 firm-year observations can

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<sup>20</sup>The 2007 Fleish-Hillard/National Consumers League survey is available at [https://www.nclnet.org/social\\_responsibility\\_all\\_about\\_worker\\_welfare\\_survey\\_says](https://www.nclnet.org/social_responsibility_all_about_worker_welfare_survey_says).



be matched to the COMPUSTAT database. After removing utility and financial firms (40 observations) and missing firm-specific unionization information (39 observations) and control variables (86 observations), the final sample ends up with 122 firm-year observations in 122 unique firms.

We apply a propensity score matching (PSM) approach to analyze the impact of unionized labor on unlawful insider trading cases. This approach allows us to form a control group of firms with no illegal insider trading cases but share similar observable characteristics with the 122 firms having unlawful insider transactions (the treatment firms) during the sample period. At the start of the sample, each treatment firm is matched with a control firm in the same industry with the nearest-neighbor propensity score based on the firm characteristics from the baseline regression model (1). The first four columns of Table 9 display the resulting outcomes of this PSM matching method and indicate no statistical differences in the means of all the covariates used to construct the control sample, ensuring the balance between treatment and control firms.

Next, we construct two illegal insider trading variables: the one-year ahead number (*IllegalCount*) and occurrence (*IllegalDummy*) of illegal insider trading cases in a given firm. We run a Tobit regression when *IllegalCount* is the dependent variable and a Logit regression when *IllegalDummy* is the dependent variable. As shown in Columns (5)-(8) of Table 9, the coefficients of *LVoice* and *LVoice (Dummy)* are consistently negative and statistically significant at the 1% level. In terms of the economic significance, unionized firms are associated with a 0.315 (Column (7)) decline in illegal insider trading cases relative to the mean number of 0.80 cases and a 12% (Column (8)) fall in the likelihood of breaching insider trading laws, compared with their nonunionized matched peers.<sup>21</sup> These findings suggest that due to increased personal litigation risk, corporate insiders in unionized firms tend to refrain from engaging in illegal insider trading, compared to their counterparts in nonunionized firms, further confirming unionized labor's governance role.

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<sup>21</sup>In the logit model, the 12% drop in the likelihood of illegal insider trading is computed as the difference in the predicted probability of illegal insider trading between unionized firms (*LVoice Dummy* = 1) and nonunionized firms (*LVoice Dummy* = 0), holding all other variables at their mean values.

## 6.2. Total factor productivity

Prior research suggests that unions tend to increase wages without a compensating increase in productivity (Chiles and Stewart, 1993; Vedder and Gallaway, 2002). This wage boost without a commensurate productivity improvement can be conceptualized as a tax imposed by the union. Given the causal mitigating effect of organized labor on management opportunism, our evidence perhaps implies that the management in unionized firms is less likely to use its power in rent extraction and would adopt policies more aligned with labor’s interests. Hence, we expect labor productivity to be higher in these firms. We follow Faleye, Mehrotra, and Morck (2006) and estimate total factor productivity based on the Cobb-Douglas production function, as below:

$$Y_{i,t} = AL_{i,t}^{\alpha} K_{i,t}^{\beta}, \quad (4)$$

where  $Y_{i,t}$  is sales generated by firm  $i$  in year  $t$ ,  $L$  is the number of employees,  $K$  is net property, plant, and equipment, and  $A$ ,  $\alpha$ , and  $\beta$  are parameters. We take the log transformation on both sides of the equation to facilitate the regression analysis. Our measure of the firm-level total factor productivity is the resulting residual from estimating the log transformed production function of Eq. (4). We then examine the effect of insider opportunism on total factor productivity as follows.

$$\begin{aligned} \text{Total Factor Productivity}_{i,t} = & \alpha_0 + \beta_1 \text{Opportunism}_{i,t} \times \text{LVoice}_{i,t-1} + \beta_2 \text{Opportunism}_{i,t} \\ & + \beta_3 \text{LVoice}_{i,t-1} + \gamma' X_{i,t-1} + \epsilon_{i,t}, \end{aligned} \quad (5)$$

*Opportunism*, *LVoice*, and  $X_{i,t-1}$  are defined earlier. Table 10 reports the estimates of Eq. (5). First, the coefficient of *LVoice* is significantly positive in the firm-level regressions but negative in the insider trade-level regression, in line with the mixed evidence on how unions affect productivity.<sup>22</sup> Of particular interest is the coefficient of the interaction between *LVoice* and each opportunistic insider trading measure; they are all persistently negative and statistically significant at the 1% level. The implication is that organized labor improves productivity through enhancing corporate governance by way of curbing opportunistic insider trading.

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<sup>22</sup>Kuhn (1998) provides an excellent literature survey on the possible associations between unions and productivity.

### 6.3. Value implications

Previous studies contend that unethical management behavior is often a precursor of general corporate governance malfunctioning (Biggerstaff, Cicero, and Puckett, 2015; Ali and Hirschleifer, 2017). Ali and Hirschleifer report that firms with opportunistic insiders tend to engage in earnings management and have more earnings restatements, SEC enforcement actions, and shareholder lawsuits. To the extent that the presence of opportunistic insider trading is an indication of the overall governance weakness, our evidence suggests that organized labor improves corporate governance quality by curbing opportunistic insider trading. As such, we anticipate that managers in unionized firms are more disciplined to work toward enhancing firm performance in the best interests of shareholders and other stakeholders. This rationale predicts a positive effect of labor’s corporate governance voice on firm performance through its ability to lower opportunistic insider trading. The research design we employ to examine for evidence of such firm value implications is analogous to Eq. (5). We replace the dependent variable in the model with each of the three different measures of accounting- and market-based firm performance, namely, return on assets (*Return on Assets*), future 3-year sales growth rate (*3-Year Sales Growth*), and Tobin’s Q (*Tobin’s Q*). The results are shown in Table 11.

The variable of interest is the interaction between *LVoice* and each proxy for insider trading activity. The coefficient of this interaction term is mostly negative and statistically significant at the 5% level. For example, the coefficient varies between -0.014 ( $t - statistic = -2.49$ ) for  $LVoice \times OpProfits\_OD$  in Column (4) and -0.021 ( $t - statistic = -3.75$ ) for  $LVoice \times OpTrades$  in Column (1). The results continue to remain statistically significant when we replace *Return on Assets* with *Tobin’s Q*. The coefficients of the interaction term are negative and statistically significant at the 1% level; the estimates range from -0.159 ( $t - statistic = -3.41$ ) in Column (11) to -0.363 ( $t - statistic = -9.15$ ) in Column (10). These results imply a value-enhancing effect of the organized labor’s disciplining role in limiting managerial opportunism; a strong labor voice helps to improve a firm’s operating performance and firm value. The evidence is, however, slightly weaker when we examine the monitoring effect of labor via insider trading on *3-Year Sales Growth*, where the result is insignificant when we employ insider trading profitability as a proxy for insider opportunism.

Combined, our results suggest that the presence of unionized labor can benefit shareholders through disciplining management misbehavior and improving corporate governance.

#### 6.4. Market implications

The existing literature establishes a stylized fact that insider trades are informative and that such trades have the predictive power of future stock performance (Lakonishok and Lee, 2001; CMP, 2012; Ali and Hirschleifer, 2017). Given that the presence of unionized labor limits informed insider trading, a natural question to ask is whether the market can still benefit from mimicking the trades of insiders in unionized firms. Following Lakonishok and Lee, we examine the market implication of our key finding in the following return predictability specification:

$$\text{Return}_{i,t+1 \rightarrow t+k} = \alpha_0 + \beta_1 LVoice_{i,t} \times NPR_{i,t} + \beta_2 LVoice_{i,t} + \beta_3 NPR_{i,t} + \gamma' X_{i,t} + \epsilon_{i,t}. \quad (6)$$

In Eq. (6), we regress future stock returns (i.e., future one-, three- or six-month returns) on insider net purchase ratio,  $NPR$ , and its interaction term with  $LVoice$  along with other firm characteristic controls ( $X_{i,t}$ ). The observations are at the monthly interval.  $NPR$  is computed as the number of insider purchases minus sales, scaled by the total number of insider trades in the previous six months. The estimations of Eq. (6) are summarized in Table 12. Using future stock raw returns as the dependent variable in Columns (1)-(3), we show that the coefficient of  $NPR$  is positive and statistically significant at the 1% level over the one-, three- and six-month horizons. This evidence confirms the predictive ability of insider net buys. Our main variable of interest is the interaction between  $LVoice$  and  $NPR$ . Surprisingly, the  $LVoice \times NPR$  coefficient is negative and statistically significant at any conventional levels. This indicates that the presence of unions significantly reduces return predictability of insider trades by restricting insiders' ability to trade on private information. The offsetting effect of unionization on insider trades' return predictability is sizable in economic magnitude. In Panel B of the table when  $LVoice$  is replaced by  $LVoice(Dummy)$ , we demonstrate the economic impact of unionization across all measures of excess stock returns. Over the one-month horizon in model (1), the coefficient of  $NPR$  is 0.005 ( $t$ -value = 12.14) and that of  $LVoice(Dummy) \times NPR = -0.002$  ( $t$ -value = -3.54) in the raw stock returns regression, indicating a 40% (-0.002/0.005) reduction in insider trades' return predictive power. It is evident

from Panel B that the predictive ability of insider trades declines even further over longer horizons (i.e., 3-month period and six-month period). In the six-month window, return predictability of insider trades turns out to be 62% weaker in unionized firms than in nonunionized firms.

We replace the dependent variable with market-adjusted excess stock returns in Columns (4)-(6) and industry-adjusted excess returns in Columns (7)-(9) and find similar results. While  $NPR$  exhibits strong associations with future market- and industry-adjusted excess returns, the signs of  $LVoice \times NPR$  are consistently negative across all three horizons. As shown in Panel B, the economic significance of the negating effect of unionization becomes even stronger in the excess stock returns analysis. For market-adjusted excess stock returns, insider trades' return predictability decreases by 50% to 76% in union firms as we extend the horizon from one month to three months. Similar magnitudes are observed for industry-adjusted excess stock returns. The overall evidence yields a valuable and economically significant implication for stock market investors who replicate the trading of insiders. Due to unions' disciplining role in tempering informed insider trading, investors might be precluded from earning abnormal returns if they mimic the transactions of insiders from union firms.

## 7. Conclusion

Our study shows that organized labor can discipline the opportunistic insider trading behavior. Unionized firms experience reduced opportunistic insider trading activity and lower insider trading profitability, compared to their nonunionized counterparts. This evidence further corroborates the results from analyzing the effect of organized labor on opportunistic insider trading following close-call labor union elections in an RDD setting, the adoption of right-to-work laws, and using an instrumental variable approach.

Additional analyses indicate that organized labor exerts its significant influence on insider opportunism through implementing better employee welfare systems that empower employees' impact on corporate events, through union shareholder activism, and by way of the media and political support that may potentially expose firms to negative publicity and reputation loss. In particular, the organized labor's role in corporate governance is more pronounced in firms with better social

and employee relations, firms held by union fund activists, firms that operate where a Dow Jones news office is located, and when the U.S. president is a Democrat.

Prior literature has mostly documented that organized labor has deleterious effects on firm productivity, profitability, investment in physical capital, and research and development, and sales growth, among others. In contrast, our study finds that organized labor has bright sides – it helps curb illegal insider trading and its restraint on opportunistic insider trading reduces managerial power to extract rents and, in turn, improves firm productivity and performance. It also conveys an important message to investors that attempt to exploit the information contained in insider trades – these trades are less informative when employees can effectively monitor management.

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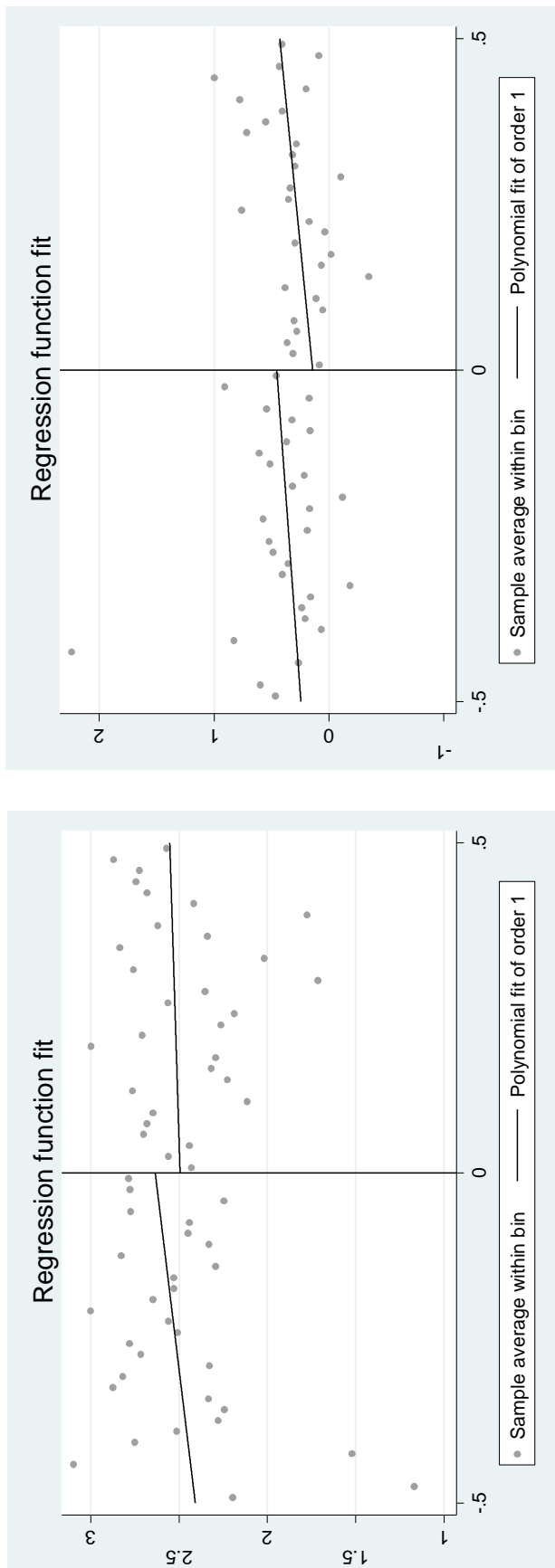
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**Figure 1**  
**Regression Discontinuity Plots of the Effect of Labor Voice on Opportunistic Insider Trading**

This figure illustrates the change in average insider trading activity (of all insiders on the left and of officers and directors on the right) around union elections over a three-year window using a fitted linear estimate. The  $x$ -axis is the distance (in voting shares) from the majority threshold by which a union election can pass. The firms with a voting share less (greater) than 50% failed (passed) the election and are plotted to the left (right). The dots represent the reactions of insiders in terms of their trading behavior over a three-year window after union elections. These dots are distributed based on 60 equally spaced voting share bins (with each bin width of 1.7%).



**Table 1**  
**Descriptive Statistics**

This table reports descriptive statistics of key variables in our empirical analysis. The full sample consists of 33,515 firm-year observations during the period 1996 – 2017, with 6,396 firm-years in unionized firms and 27,119 firm-years in nonunionized firms. *OpTrades* and *OpTrades\_OD* represent the natural log of one plus the number of opportunistic trades made by all insiders and by officers and directors in a given year, respectively. *OpProfits* (*OpProfits\_OD*) is the Fama and French (2015) risk-adjusted abnormal returns over the window [1, 180] relative to the insider transaction date for all insiders (for officers and directors only). *LVoice* denotes firm-level unionization ratio. *Turnover* is daily trading volume. *Return* is prior stock return. *Analyst* is the number of analyst forecasts. *IO* is institutional ownership. *Leverage* is financial leverage. *Size* is firm size. *BM* is book-to-market ratio. All variables are defined in Appendix A. We report the mean (*Mean*), median (*Median*) and standard deviation (*StdDev*) of main variables for the full sample in columns (1)-(3), as well as the number of observations (*NObs*), median (*Median*), and *StdDev* for those of the unionized firms in columns (4)-(7) and nonunionized firms in columns (8)-(11). Column (12) reports the *p*-values of *t*-tests of the mean difference for each variable, whereas column (13) presents those of Wilcoxon tests of the median difference between unionized and nonunionized variables. The continuous variables are winsorized at the top and bottom 1% of the sample distribution.

Variable	Full Sample			Unionized Firms			Nonunionized Firms			<i>p</i> -value			
	Mean (1)	Median (2)	StdDev (3)	NObs (4)	Mean (5)	Median (6)	StdDev (7)	NObs (8)	Mean (9)	Median (10)	StdDev (11)	(5)-(9) (12)	(6)-(10) (13)
<i>Labor Voice Proxy</i>													
<i>LVoice</i>	0.039	0.000	0.117	6,396	0.206	0.140	0.192	27,119	0.000	0.000	0.000	0.000	0.000
<i>Inside Trading Variables</i>													
<i>OpTrade</i>	2.711	2.639	1.204	6,396	2.652	2.565	1.195	27,119	2.725	2.708	1.206	0.000	0.000
<i>OpTrade_OD</i>	2.666	2.639	1.195	6,357	2.596	2.565	1.187	26,976	2.682	2.639	1.196	0.000	0.000
<i>OpAlpha</i>	0.544	0.353	1.018	66,190	0.470	0.265	1.048	348,547	0.558	0.368	1.012	0.000	0.000
<i>OpAlpha_OD</i>	0.541	0.350	1.021	62,551	0.465	0.260	1.050	333,806	0.555	0.365	1.015	0.000	0.000
<i>Firm-Specific Control Variables</i>													
<i>Turnover</i>	0.877	0.667	0.732	6,396	0.743	0.593	0.585	27,119	0.908	0.688	0.759	0.000	0.000
<i>Return</i>	0.232	0.198	0.511	6,396	0.188	0.180	0.414	27,119	0.242	0.205	0.531	0.000	0.000
<i>Analyst</i>	7.746	5.250	6.964	6,396	8.427	6.417	6.652	27,119	7.585	5.000	7.026	0.000	0.000
<i>IO</i>	0.595	0.638	0.263	6,396	0.678	0.734	0.232	27,119	0.575	0.609	0.266	0.000	0.000
<i>Leverage</i>	0.181	0.149	0.175	6,396	0.279	0.271	0.165	27,119	0.158	0.106	0.169	0.000	0.000
<i>Size</i>	13.484	13.315	1.804	6,396	14.045	13.982	1.697	27,119	13.351	13.167	1.802	0.000	0.000
<i>BM</i>	0.510	0.414	0.382	6,396	0.572	0.477	0.391	27,119	0.496	0.400	0.378	0.000	0.000

**Table 2**  
**Effects of Labor Voice on Insider Trading Opportunism**

This table presents the regression results of the following baseline equation:

$$IOppportunism_{i,t} = \alpha_0 + \beta_1 LVoice_{i,t-1} + \beta_2 Turnover_{i,t-1} + \beta_3 Return_{i,t-1} + \beta_4 Analyst_{i,t-1} + \beta_5 IO_{i,t-1} + \beta_6 Leverage_{i,t-1} + \beta_7 Size_{i,t-1} + \beta_8 BM_{i,t-1} + \epsilon_{i,t},$$

where *IOppportunism* alternatively represents (1) the frequency of opportunistic insider trading for all insiders (*OpTrades*) and for officers and directors only (*OpTrades.OD*) and (2) insider trading profitability for all insiders (*OpProfits*) and for officers and directors only (*OpProfits.OD*). Labor is alternatively measured by the firm's unionization ratio (*LVoice*) and a binary variable, *LVoice(Dummy)*, for whether the firm is unionized. The list of control variables includes *Turnover*, *Return*, *Analyst*, *IO*, *Leverage*, *Size*, and *BM*. Industry and year fixed effects are also included. The regressions are estimated at the firm level for the frequency of opportunistic trading measures and at the insider trade level for the insider trading profitability measures. All variables are defined in Appendix A. The continuous variables are winsorized at the top and bottom 1% of the sample distribution. The *t*-statistics in parentheses are based on heteroskedasticity-consistent and firm-level clustered standard errors. The symbols \*\*\*, \*\*, and \* denote the statistical significance at 1%, 5%, and 10% levels, respectively. NObs is the number of firm-year observations. The sample period is from 1996 to 2017.

Variable	Dependent Variable = Opportunistic Insider Trades				Dependent Variable = Opportunistic insider Trading Profits			
	All Insiders		Officers/Directors		All Insiders		Officers/Directors	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LVoice	-0.219** (-2.24)		-0.242** (-2.48)		-0.208*** (-2.60)		-0.209** (-2.52)	
LVoice (Dummy)		-0.070** (-2.43)		-0.079*** (-2.73)		-0.026** (-2.23)		-0.026** (-2.20)
Turnover	0.136*** (10.04)	0.134*** (9.89)	0.135*** (9.90)	0.133*** (9.75)	-0.019*** (-2.78)	-0.014*** (-3.34)	-0.020*** (-2.93)	-0.016*** (-3.65)
Return	0.346*** (24.88)	0.347*** (24.90)	0.343*** (24.61)	0.343*** (24.64)	0.005*** (36.54)	0.004*** (40.74)	0.005*** (37.05)	0.005*** (40.93)
Analyst	0.001 (0.26)	0.000 (0.14)	0.001 (0.29)	0.000 (0.16)	-0.002* (-1.90)	-0.003*** (-4.31)	-0.002* (-1.79)	-0.003*** (-4.17)
IO	0.180*** (3.97)	0.187*** (4.12)	0.160*** (3.53)	0.167*** (3.70)	0.200*** (7.39)	0.201*** (10.02)	0.193*** (7.05)	0.194*** (9.62)
Leverage	-0.203*** (-3.56)	-0.189*** (-3.27)	-0.224*** (-3.92)	-0.208*** (-3.58)	-0.398*** (-10.84)	-0.414*** (-15.23)	-0.397*** (-10.76)	-0.414*** (-15.17)
Size	0.159*** (15.19)	0.161*** (15.22)	0.156*** (14.90)	0.157*** (14.95)	0.065*** (11.32)	0.071*** (17.48)	0.067*** (11.28)	0.073*** (17.49)
BM	-0.203*** (-7.63)	-0.201*** (-7.53)	-0.193*** (-7.31)	-0.191*** (-7.19)	-0.184*** (-8.28)	-0.198*** (-8.95)	-0.189*** (-8.37)	-0.207*** (-9.30)
NObs	33,515	33,515	33,333	33,333	414,737	414,737	396,357	396,357
Adj R <sup>2</sup>	0.189	0.189	0.185	0.185	0.318	0.316	0.316	0.315
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 3**  
**Employee Ownership, Employee Opportunism, and Insider Trading Opportunism**

This table tests the effects of employee ownership and employee opportunism on insider opportunism. Panels A and B show results from the following two models, respectively,

$$IOpportunism_{i,t} = \alpha_0 + \beta_1 EO_{i,t-1} + \gamma' X_{i,t-1} + \epsilon_{i,t},$$

$$IOpportunism_{i,t} = \alpha_0 + \beta_1 EO_{i,t-1} + \beta_2 EOpportunism_{i,t-1} + \beta_3 EO_{i,t-1} \times EOpportunism_{i,t-1} + \gamma' X_{i,t-1} + \epsilon_{i,t},$$

where *IOpportunism* alternatively represents (1) the frequency of opportunistic insider trading for all insiders (*OpTrades*) and for officers and directors only (*OpTrades\_OD*) and (2) insider trading profitability for all insiders (*OpProfits*) and for officers and directors only (*OpProfits\_OD*). EO is the employee ownership, and EOpportunism denotes employee opportunism. EOpportunism is proxied by excess employee pay, a firm as a target for takeover, and a firm's index that measures its vulnerability to takeover. The list of control variables includes *Turnover*, *Return*, *Analyst*, *IO*, *Leverage*, *Size*, and *BM*. Industry and year fixed effects are also included. The regressions are estimated at the firm level for the frequency of opportunistic trading measures and at the insider trade level for the insider trading profitability measures. All variables are defined in Appendix A. The continuous variables are winsorized at the top and bottom 1% of the sample distribution. The *t*-statistics in parentheses are based on heteroskedasticity-consistent and firm-level clustered standard errors. The symbols \*\*\*, \*\*, and \* denote the statistical significance at 1%, 5%, and 10% levels, respectively. NObs is the number of firm-year observations. The sample period is from 1996 to 2017.

Panel A: Effect of Employee Ownership on Opportunistic Insider Trading				
Variable	Dep Var = OpTrades		Dep Var = OpProfits	
	All Insiders	Officers/Directors	All Insiders	Officers/Directors
	(1)	(2)	(3)	(4)
EO	-0.008** (-2.17)	-0.007* (-1.92)	0.000 (0.03)	-0.000 (-0.05)
Turnover	0.099*** (5.24)	0.097*** (5.08)	-0.008 (-1.26)	-0.010 (-1.57)
Returns	0.418*** (21.31)	0.411*** (20.96)	0.003*** (23.62)	0.003*** (24.23)
Analyst	0.001 (0.23)	0.000 (0.09)	-0.003*** (-2.97)	-0.003*** (-2.88)
IO	0.180*** (2.89)	0.158** (2.53)	0.127*** (4.97)	0.126*** (4.87)
Leverage	-0.218*** (-2.71)	-0.235*** (-2.91)	-0.243*** (-7.57)	-0.243*** (-7.46)
Size	0.172*** (11.88)	0.168*** (11.59)	0.044*** (8.82)	0.045*** (8.88)
BM	-0.195*** (-5.36)	-0.191*** (-5.27)	-0.130*** (-6.50)	-0.135*** (-6.61)
NObs	18,717	18,626	251,781	240,455
Adj. <i>R</i> <sup>2</sup>	0.168	0.163	0.446	0.444
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

**Table 3– Continued**  
**Employee Ownership, Employee Opportunism, and Insider Trading Opportunism**

Panel B: Interaction Effect of Employee Ownership and Employee Opportunism on Opportunistic Insider Trading												
Variable	Dep Var = OpTrades		Dep Var = OpProfits		Dep Var = OpTrades		Dep Var = OpProfits		Dep Var = OpTrades		Dep Var = OpProfits	
	All Insiders	Officers/ Directors	All Insiders	Officers/ Directors	All Insiders	Officers/ Directors	All Insiders	Officers/ Directors	All Insiders	Officers/ Directors	All Insiders	Officers/ Directors
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	EOpportunism=Excess Pay			EOpportunism=Takeover Target			EOpportunism=Takeover Target			EOpportunism=Takeover Vulnerability		
EO x EOpportunism	0.008 (0.34)	0.009 (0.37)	0.014*** (3.37)	0.012*** (2.92)	0.002 (0.33)	0.002 (0.34)	0.002*** (2.76)	0.002** (2.52)	0.019** (2.38)	0.018** (2.27)	0.002** (2.48)	0.002*** (2.60)
EOpportunism	-0.002 (-0.10)	-0.003 (-0.15)	-0.020*** (-6.11)	-0.019*** (-5.67)	-0.009** (-2.06)	-0.008* (-1.85)	-0.001 (-1.26)	-0.001 (-1.37)	-0.019*** (-2.90)	-0.017*** (-2.61)	0.000 (0.50)	0.000 (0.25)
EO	0.032 (0.24)	0.034 (0.26)	-0.064*** (-3.19)	-0.070*** (-3.37)	-0.044* (-1.66)	-0.048* (-1.82)	-0.033*** (-9.33)	-0.034*** (-9.41)	-0.213*** (-4.18)	-0.207*** (-4.01)	-0.008* (-1.91)	-0.010*** (-2.19)
NObs	1,058	1,054	12,518	11,964	18717	18626	251781	240455	9,178	9,150	133,297	127,283
Adj. R <sup>2</sup>	0.226	0.227	0.430	0.425	0.168	0.163	0.446	0.444	0.161	0.157	0.535	0.531
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes



**Table 4**  
**Opportunistic Insider Trading Following the Passage of Labor Union Elections**

Panel A of this table reports the pre-existing differences in the set of observable firm-level characteristics, including stock turnover (*Turnover*), prior stock return (*Return*), the number of analyst forecasts (*Analyst*), institutional ownership (*IO*), financial leverage (*Leverage*), firm size (*Size*), and book-to-market ratio (*BM*) between firms that passed the union election and those that did not pass by a small margin. The margin is 5% around the majority threshold. Panel B reports the RDD estimations from the following local linear regression using data-driven optimal bandwidth:

$$IOppportunism_{i,t+N} = \alpha_l + \tau Pass_{i,t} + \beta_l (Vote_{i,t} - c) + (\beta_r - \beta_l) \times Pass_{i,t} \times (Vote_{i,t} - c) + \epsilon_{i,t},$$

where *IOppportunism* alternatively represents (1) the frequency of opportunistic insider trading for all insiders (*OpTrades*) in Columns (1)-(3) and for officers and directors only (*OpTrades.OD*) in Columns (4)-(6) and (2) insider trading profitability for all insiders (*OpProfits*) in Columns (7)-(9) and for officers and directors only (*OpProfits.OD*) in Columns (10)-(12). *Pass* is a dummy variable which equals one if the firm passes the union election and zero if otherwise. Industry and year fixed effects are also included. The regressions are estimated at the firm level for the frequency of opportunistic trading measures and at the insider trade level for the insider trading profitability measures. The symbols \*\*\*, \*\*, and \* denote the statistical significance at 1%, 5%, and 10% levels, respectively. NObs is the number of firm-year observations. The sample period is from 1996 to 2017.

Panel A: Pre-existing Differences in Baseline Covariates												
Variable	Unionized			Nonunionized			Diff		p-value			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Turnover		0.816		0.700		0.117		0.367				
Return		0.174		0.263		-0.089		0.309				
Analyst		11.988		9.971		2.017		0.259				
IO		0.705		0.636		0.070		0.242				
Leverage		0.295		0.267		0.028		0.493				
Size		14.635		14.566		0.068		0.882				
BM		0.633		0.429		0.204		0.006				

Panel B: Opportunistic Insider Trading Over One to Three Years Following the passage of a Labor Union Election												
Variable	IOppportunism = Opportunistic Insider Trades						IOppportunism = Opportunistic insider Trading Profits					
	All Insiders			Officers/Directors			All Insiders			Officers/Directors		
	1-Year	2-Year	3-Year	1-Year	2-Year	3-Year	1-Year	2-Year	3-Year	1-Year	2-Year	3-Year
Pass	-0.403 (-1.27)	-0.459* (-1.92)	-0.450** (-2.25)	-0.339 (-1.11)	-0.419* (-1.80)	-0.395** (-2.00)	-0.856*** (-2.83)	-0.633*** (-2.62)	-0.549** (-2.23)	-0.891*** (-2.89)	-0.647*** (-2.68)	-0.570** (-2.32)
NObs	267	382	487	266	381	486	996	1,522	1,708	952	1,446	1,619
Adj. R <sup>2</sup>	0.306	0.351	0.357	0.302	0.353	0.360	0.534	0.501	0.493	0.534	0.495	0.483

**Table 5**  
**Difference in Differences Analyses: State Right-to-Work Laws**

This table reports the difference-in-differences regression results of opportunistic insider trading activity on the RTW treatment dummy variable and its interaction with an indicator of periods after the adoption of the RTW law, along with other control variables. The regression model is as below:

$$IOppportunism_{i,t} = \alpha_0 + \beta_1 RTW_{i,t} \times Post_{i,t} + \beta_2 RTW_{i,t} + \beta_3 Post_{i,t} + \gamma' X_{i,t-1} + \epsilon_{i,t}$$

where *IOppportunism* alternatively represents (1) the frequency of opportunistic insider trading for all insiders (*OpTrades*) and for officers and directors only (*OpTrades\_OD*) and (2) insider trading profitability for all insiders (*OpProfits*) and for officers and directors only (*OpProfits\_OD*). *RTW* is an indicator which equals one if a firm is located in the states that adopted the RTW law during our sample period and zero if otherwise. *Post* is a time indicator that takes the value of one if the firm-year observation is after the adoption of the RTW law and zero if otherwise. The vector of unreported control variables,  $X_{i,t-1}$  includes *Turnover*, *Return*, *Analyst*, *IO*, *Leverage*, *Size*, and *BM*. Industry and year fixed effects are also included. Panel A reports the mean values of control variables for treatment and control firms, the difference in mean values, and the *p*-values of the *t*-tests of mean differences. Panel B presents the DiD regression results where regressions are estimated at the firm level for the frequency of opportunistic insider trading measures and at the insider trade level for the insider trading profitability measures. All variables are defined in Appendix A. The continuous variables are winsorized at the top and bottom 1% of the sample distribution. The *t*-statistics in parentheses are based on heteroskedasticity-consistent and firm-level clustered standard errors. The symbols \*\*\*, \*\*, and \* denote the significance at 1%, 5%, and 10% levels, respectively. NObs is the number of firm-year observations. The sample period is from 1996 to 2017.

Panel A: Comparison between Treatment and Control Samples				
Variable	Treatment (1)	Control (2)	Diff (3)	p-value (4)
Turnover	0.716	0.839	-0.124	0.101
Return	0.160	0.154	0.006	0.926
Analyst	8.675	8.993	-0.318	0.730
IO	0.678	0.716	-0.038	0.230
Leverage	0.198	0.198	0.000	0.993
Size	13.883	13.846	0.037	0.866
BM	0.576	0.573	0.003	0.960
Panel B: Difference-in-Differences Regression Estimates				
Variable	Opportunistic Insider Trades		Insider Trading Profits	
	All Insiders (1)	Officers/Directors (2)	All Insiders (3)	Officers/Directors (4)
RTW × Post	0.263** (2.16)	0.244** (1.98)	0.045*** (2.74)	0.046*** (2.75)
RTW	-0.165** (-1.84)	-0.139 (-1.54)	-0.015 (-0.94)	-0.012 (-0.76)
Post	-0.111 (-0.66)	-0.099 (-0.60)	-0.748*** (-6.66)	-0.690*** (-5.97)
NObs	1,895	1,890	14,222	13,489
Adj. $R^2$	0.093	0.087	0.334	0.317
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

**Table 6**  
**Additional Tests**

This table performs a series of robustness checks on the negative effect of unionized labor on insider trading restrictions. In Panel A, we use an alternative opportunistic insider trading variable, *Fraction of Quintile 5 Insiders*, which is the fraction of insiders whose all past pre-QEA profits are ranked in top quintile (quintile 5) following Ali and Hirschleifer (2017)'s methodology for all insiders and for a subsample of officers and directors in Tobit regressions. In Panel B, we replace *LVoice* with a new unionization variable, *LVoice<sub>Ind</sub>*, which is computed as the product of union members in the firm's industry and the firm's labor intensity, where labor intensity refers to the total number of employees scaled by total assets. We examine the monitoring role of labor during labor strike periods, where a dummy variable, *Strike*, is set equal to one if the firm-year is in the strike periods and zero if otherwise. In Panel D, we expand the baseline regression model by including two board characteristic variables, board size (*BoardSize*) and board independence (*BoardInd*). The four insider opportunism variables include *OpTrades*, *OpTrades\_OD*, *OpProfits* and *OpProfits\_OD*. The list of unreported control variables includes stock trading turnover (*Turnover*), prior stock return (*Return*), number of analyst forecasts (*Analyst*), institutional ownership (*IO*), financial leverage (*Leverage*), firm size (*Size*), and book-to-market (*BM*). Industry and year fixed effects are also included. All the variables are defined in Appendix A. The continuous variables are winsorized at the top and bottom 1% of the sample distribution. The *t*-statistics in parentheses are based on heteroskedasticity-consistent standard errors. The symbols \*\*\*, \*\*, and \* denote the significance at 1%, 5%, and 10% levels, respectively. NObs is the number of firm-year observations. The sample period is from 1996 to 2017.

Panel A: Alternative Measure of Insider Opportunism: Fraction of Quintile 5 Insiders				
Variable	All Insiders		Officers/Directors	
	(1)	(2)	(3)	(4)
LVoice	-0.070*** (-2.72)	-0.053** (-2.05)	-0.088*** (-3.00)	-0.077*** (-2.61)
NObs	34,382	34,382	34,221	34,221
Pseudo <i>R</i> <sup>2</sup>	0.01	0.02	0.01	0.01
Controls	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

Panel B: Alternative Measure of LVoice: Industry-Level Unionization Rate, LVoice <sub>Ind</sub>				
Variable	Opportunistic Insider Trades		Insider Trading Profits	
	All Insiders	Officers/Directors	All Insiders	Officers/Directors
	(1)	(2)	(3)	(4)
LVoice <sub>Ind</sub>	-0.134** (-2.06)	-0.130** (-2.02)	-0.271*** (-2.72)	-0.296*** (-2.94)
NObs	37,241	37,036	450,649	430,601
Adj. <i>R</i> <sup>2</sup>	0.183	0.179	0.302	0.302
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

**Table 6–Continued**  
**Alternative Tests**

Panel C: Intensity of Labor Voice – Labor Strikes				
Variable	Opportunistic Insider Trades		Insider Trading Profits	
	All Insiders	Officers/Directors	All Insiders	Officers/Directors
	(1)	(2)	(3)	(4)
Strike	-0.217*** (-3.01)	-0.210*** (-2.94)	-0.105** (-2.04)	-0.121** (-2.21)
LVoice	-0.208*** (-3.53)	-0.232*** (-3.97)	-0.206*** (-11.58)	-0.210*** (-10.82)
NObs	33,515	33,333	414,737	396,357
Adj. $R^2$	0.189	0.185	0.318	0.317
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

Panel D: Additional Control Variables				
Variable	Opportunistic Insider Trades		Insider Trading Profits	
	All Insiders	Officers/Directors	All Insiders	Officers/Directors
	(1)	(2)	(3)	(4)
LVoice	-0.180** (-2.40)	-0.211*** (-2.82)	-0.217** (-2.31)	-0.211** (-2.21)
BoardSize	0.323*** (7.56)	0.321*** (7.52)	-0.011 (-0.32)	-0.012 (-0.36)
BoardInd	-0.365*** (-5.89)	-0.400*** (-6.47)	-0.299*** (-5.59)	-0.321*** (-5.97)
NObs	11,774	11,735	163,065	155,796
Adj. $R^2$	0.173	0.170	0.451	0.446
Other Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

**Table 7**  
**Cross-Sectional Analysis**

This table reports the cross-sectional variation in the labor effect on insider opportunism conditional on the product market competition, the firm's reliance on labor skills, financial position and information environment in the following regression:

$$IOppportunism_{i,t} = \alpha_0 + \beta_1 LVoice_{i,t-1} \times FirmChar_{i,t-1} + \beta_2 FirmChar_{i,t-1} + \beta_3 LVoice_{i,t-1} + \gamma' X_{i,t-1} + \epsilon_{i,t}$$

where *IOppportunism* alternatively represents (1) the frequency of opportunistic insider trading for all insiders (*OpTrades*) and for officers and directors only (*OpTrades\_OD*) and (2) insider trading profitability for all insiders (*OpProfits*) and for officers and directors only (*OpProfits\_OD*). *FirmChar* denotes four different firm characteristics, namely, product market competition (*Fluidity*), reliance on labor skills (*LSkill*), financial distress risk (*ZScore*) and corporate information environment (*EM*). We subsequently replace *FirmChar* with each of these four measures and present the estimation results in Panels A to D, respectively. The unreported control variables (*X*) are *Turnover*, *Return*, *Analyst*, *IO*, *Leverage*, *Size*, and *BM*. Industry and year fixed effects are also included. The regressions are estimated at the firm level for *OpTrades* and *OpTrades\_OD* and at the insider transaction level for *OpProfits* and *OpProfits\_OD*. All variables are defined in Appendix A. The continuous variables are winsorized at the top and bottom 1% of the sample distribution. The continuous variables are winsorized at the top and bottom 1% of the sample distribution. The *t*-statistics in parentheses are based on heteroskedasticity-consistent and firm-level clustered standard errors. The symbols \*\*\*, \*\*, and \* denote the significance at 1%, 5%, and 10% levels, respectively. NObs is the number of firm-year observations. The sample period is from 1996 to 2017.

Panel A: <i>FirmChar = Fluidity</i>				
Variable	Opportunistic Insider Trades		Insider Trading Profits	
	All Insiders	Officers/Directors	All Insiders	Officers/Directors
	(1)	(2)	(3)	(4)
LVoice × Fluidity	-0.055*** (-2.61)	-0.049** (-2.33)	-0.008 (-0.33)	-0.005 (-0.20)
Fluidity	0.009*** (3.49)	0.009*** (3.38)	0.004** (2.20)	0.004** (2.10)
LVoice	0.022 (0.17)	-0.032 (-0.25)	-0.131 (-0.77)	-0.145 (-0.83)
NObs	29,839	29,683	377,289	360,734
Adj. <i>R</i> <sup>2</sup>	0.178	0.173	0.348	0.347
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Panel B: <i>FirmChar = LSkill</i>				
Variable	Opportunistic Insider Trades		Insider Trading Profits	
	All Insiders	Officers/Directors	All Insiders	Officers/Directors
	(1)	(2)	(3)	(4)

**Table 7 - Continued**  
**Cross-Sectional Analysis**

Panel C: <i>FirmChar = ZScore</i>				
Variable	Opportunistic Insider Trades		Insider Trading Profits	
	All Insiders	Officers/Directors	All Insiders	Officers/Directors
	(1)	(2)	(3)	(4)
LVoice × ZScore	0.092** (2.05)	0.088* (1.96)	0.082*** (2.98)	0.083*** (2.95)
ZScore	0.021*** (11.82)	0.021*** (12.00)	-0.000 (-0.24)	-0.000 (-0.06)
LVoice	-0.448*** (-2.78)	-0.451*** (-2.81)	-0.473*** (-3.48)	-0.476*** (-3.40)
NObs	32,764	32,585	406,402	388,441
Adj. $R^2$	0.199	0.195	0.320	0.320
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

Panel D: <i>FirmChar = EM</i>				
Variable	Opportunistic Insider Trades		Insider Trading Profits	
	All Insiders	Officers/Directors	All Insiders	Officers/Directors
	(1)	(2)	(3)	(4)
LVoice × EM	-1.266** (-2.25)	-1.178** (-2.18)	-2.436*** (-2.67)	-2.246** (-2.46)
EM	0.117*** (3.24)	0.122*** (3.38)	-0.116** (-2.57)	-0.118*** (-2.58)
LVoice	-0.091 (-0.83)	-0.114 (-1.05)	-0.044 (-0.50)	-0.055 (-0.64)
NObs	31,909	31,736	395,103	377,665
Adj. $R^2$	0.190	0.187	0.319	0.318
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

**Table 8**  
**Economic Mechanisms**

This table reports the regression results on the economic mechanisms through which unionized labor can exert its influence on insider opportunism in the following regression:

$$Opportunism_{i,t} = \alpha_0 + \beta_1 LVoice_{i,t-1} \times Mechanism_{i,t-1} + \beta_2 Mechanism_{i,t-1} + \beta_3 LVoice_{i,t-1} + \gamma' X_{i,t-1} + \epsilon_{i,t}$$

where *Opportunism* alternatively represents (1) the frequency of opportunistic insider trading for all insiders (*OpTrades*) and for officers and directors only (*OpTrades\_OD*) and (2) insider trading profitability for all insiders (*OpProfits*) and for officers and directors only (*OpProfits\_OD*). *Mechanism* denotes three economic mechanisms: employee welfare mechanism, union shareholder mechanism and external disciplining mechanism. We use a firm's environmental and social rating from MSCI KLD (*EnvSoc*) and its rating on the "employee relations" dimension (*Employees*) as proxies for the employee welfare mechanism in Panel A. In Panel B, we introduce an indicator variable, *UFund*, which equals one if the union pension fund initiates the shareholder proposal in the previous year and zero if otherwise. In Panel C, we measure the external disciplining mechanism by capturing whether the firm is located in the same state as any of the eight Dow Jones news broadcasting offices (*DowJones*) and whether the observations are during the Democratic presidencies. The unreported control variables (*X*) are *Turnover*, *Return*, *Analyst*, *IO*, *Leverage*, *Size*, and *BM*. Industry and year fixed effects are also included. The regressions are estimated at the firm level for *OpTrades* and *OpTrades\_OD* and at the insider transaction level for *OpProfits* and *OpProfits\_OD*. All variables are defined in Appendix A. The continuous variables are winsorized at the top and bottom 1% of the sample distribution. The *t*-statistics in parentheses are based on heteroskedasticity-consistent and firm-level clustered standard errors. The symbols \*\*\*, \*\*, and \* denote the significance at 1%, 5%, and 10% levels, respectively. NObs is the number of firm-year observations. The sample period is from 1996 to 2017.

Panel A: Employee Welfare Mechanisms

Variable	Opportunistic Insider Trades			Insider Trading Profits				
	All Insiders (1)	(2)	Officers/Directors (3)	All Insiders (4)	All Insiders (5)	(6)	(7)	(8)
LVoice×EnvSoc	-0.254** (-2.09)		-0.283** (-2.35)		-0.305*** (-2.95)		-0.358*** (-3.56)	
EnvSoc	0.001 (0.07)		0.007 (0.38)		-0.017 (-1.62)		-0.017 (-1.54)	
LVoice × Employees		-0.229** (-2.07)		-0.253** (-2.30)		-0.248** (-2.10)		-0.239** (-1.99)
Employees		0.005 (0.25)		0.009 (0.49)		-0.041*** (-3.34)		-0.039*** (-3.13)
LVoice		-0.042 (-0.38)		-0.089 (-0.93)		-0.073 (-0.75)		-0.080 (-0.80)
NObs	33,515	33,515	33,333	33,333	414,737	414,737	396,357	396,357
Adj. R <sup>2</sup>	0.189	0.189	0.185	0.185	0.318	0.318	0.318	0.318
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 8 – Continued**  
**Economic Mechanisms**

		Panel B: Union Shareholder Mechanism			
		Opportunistic Insider Trades		Opportunistic Insider Profits	
Variable		All Insiders	Officers/Directors	All Insiders	Officers/Directors
		(1)	(2)	(3)	(4)
LVoice × UFund		-0.869** (-2.27)	-0.906** (-2.36)	-0.178** (-2.24)	-0.174** (-2.13)
LVoice		-0.208* (-1.69)	-0.252** (-2.06)	0.011 (0.33)	0.007 (0.22)
UFund		-0.107* (-1.82)	-0.117** (-1.99)	0.045* (1.94)	0.041* (1.74)
NObs		7,324	7,304	106,291	101,113
Adj. $R^2$		0.185	0.183	0.648	0.647
Controls		Yes	Yes	Yes	Yes
Year FE		Yes	Yes	Yes	Yes
Industry FE		Yes	Yes	Yes	Yes

		Panel C: External Disciplining Mechanisms							
		Opportunistic Insider Trades			Insider Trading Profits				
Variable		All Insiders	Officers/Directors	All Insiders	All Insiders	Officers/Directors	Officers/Directors		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LVoice×DowJones		-0.337*** (-2.96)		-0.377*** (-3.34)		-0.054 (-0.33)		-0.081 (-0.48)	
DowJones		0.107*** (7.79)		0.110*** (8.07)		0.040*** (3.32)		0.044*** (3.65)	
LVoice×Democratic			-0.482*** (-2.84)		-0.469*** (-2.74)		-0.480*** (-4.53)		-0.499*** (-4.61)
Democratic			0.211*** (3.12)		0.181*** (2.69)		1.206*** (30.60)		1.191*** (30.98)
LVoice		-0.101 (-1.46)	0.107 (1.63)	-0.111 (-1.02)	0.074 (0.44)	-0.183** (-2.18)	0.096 (1.56)	-0.174** (-2.00)	0.107 (1.60)
NObs		33,514	33,514	33,332	33,332	414,730	414,730	396,350	396,350
Adj. $R^2$		0.190	0.189	0.186	0.185	0.318	0.319	0.318	0.318
Controls		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes



**Table 9**  
**The Effect of Labor Voice on Illegal Insider Trading Activities**

This table presents regression results on how unionized labor affects the illegal insider trading activities on a PSM-matched sample with treatment and control groups. The treatment group consists of firms with at least one insider trading case during our sample period, whereas the control group consists of firms with no such incidents. At the start of our sample, each treatment firm is paired to one control firm in the same industry and with the nearest neighbor propensity score based on all the covariates specified in the baseline regression model (1). Columns (1)-(2) display the covariates' mean values in treatment and control subsamples and columns (3)-(4) report the differences in mean values of covariates and the  $p$ -values for the  $t$ -tests on the mean differences across the two subsamples. Columns (5) and (7) report Tobit regression results of the number of illegal insider trading cases (*IllegalCount*) on *LVoice* and *LVoice* (Dummy), respectively, while columns (6) and (8) present logit regression results of the likelihood of illegal insider trading (*IllegalDummy*) on *LVoice* and *LVoice* (Dummy), along with other firm-level controls. The list of control variables includes *Turnover*, *Return*, *Analyst*, *IO*, *Leverage*, *Size*, and *BM*. Industry and year fixed effects are also included. All variables are defined in Appendix A. The continuous variables are winsorized at the top and bottom 1% of the sample distribution. The  $t$ -statistics in parentheses are based on heteroskedasticity-consistent and firm-level clustered standard errors. The symbols \*\*\*, \*\*, and \* denote the significance at 1%, 5%, and 10% levels, respectively. NObs is the number of firm-year observations. The sample period is from 1996 to 2017.

Variable	Covariate Balance Tests							
	Treatment (1)	Control (2)	Diff (3)	$p$ -value (4)	IllegalCount (5)	IllegalDummy (6)	IllegalCount (7)	IllegalDummy (8)
LVoice	0.032	0.044	-0.012	0.331	-1.357*** (-4.98)	-1.079*** (-2.84)	-0.315*** (-3.03)	-0.469*** (-4.21)
LVoice (Dummy)	0.106	0.151	-0.045	0.157			0.254*** (7.72)	0.439*** (7.69)
Turnover	1.132	1.013	0.119	0.169	0.256*** (7.88)	0.450*** (7.89)	0.062 (1.19)	0.058 (0.75)
Returns	0.403	0.337	0.066	0.232	0.056 (1.08)	0.051 (0.66)	0.018*** (3.44)	0.038*** (5.14)
Analyst	8.012	8.569	-0.558	0.497	0.018*** (3.56)	0.040*** (5.39)	-0.288** (-2.13)	-0.662*** (-3.56)
IO	0.448	0.473	-0.025	0.237	-0.303*** (-2.23)	-0.687*** (-3.68)	1.547*** (8.05)	1.512*** (6.05)
Leverage	0.158	0.138	0.020	0.207	1.505*** (7.81)	1.410*** (5.73)	-0.032 (-1.00)	-0.092*** (-3.56)
Size	13.332	13.413	-0.081	0.642	-0.034 (-1.35)	-0.100*** (-2.85)	-0.118 (-1.27)	-0.360*** (-2.62)
BM	0.365	0.374	-0.009	0.737	-0.130 (-1.36)	-0.399*** (-3.05)	-0.118 (-1.24)	-0.360*** (-2.74)
NObs					4,018	4,018	4,018	4,018
Pseudo $R^2$					0.034	0.060	0.034	0.061
Year FE					Yes	Yes	Yes	Yes
Industry FE					Yes	Yes	Yes	Yes

**Table 10**  
**The Effect of Labor Voice on Total Factor Productivity**

This table reports the regression results of how labor affects total factor productivity through its restricting effect on opportunistic insider trading based on the following equation:

$$\text{Total factor productivity}_{i,t} = \alpha_0 + \beta_1 IOppportunism_{i,t} \times LVoice_{i,t-1} + \beta_2 IOppportunism_{i,t} + \beta_3 LVoice_{i,t-1} + \gamma' X_{i,t-1} + \epsilon_{i,t+1}$$

where *Opportunism* alternatively represents (1) frequency of opportunistic insider trading for all insiders (*OpTrades*) and for officers and directors only (*OpTrades\_OD*) and (2) insider trading profitability for all insiders (*OpProfits*) and for officers and directors only (*OpProfits\_OD*). The unreported control variables (*X*) are *Turnover*, *Return*, *Analyst*, *IO*, *Leverage*, *Size*, and *BM*. Industry and year fixed effects are also included. The regressions are estimated at the firm level for *OpTrades* and *OpTrades\_OD* and at the insider transaction level for *OpProfits* and *OpProfits\_OD*. All variables are defined in Appendix A. The continuous variables are winsorized at the top and bottom 1% of the sample distribution. The *t*-statistics in parentheses are based on heteroskedasticity-consistent and firm-level clustered standard errors. The symbols \*\*\*, \*\*, and \* denote the significance at 1%, 5%, and 10% levels, respectively. NObs is the number of firm-year observations. The sample period is from 1996 to 2017.

Variable	All Insiders (1)	Officers/Directors (2)	All Insiders (3)	Officers/Directors (4)
LVoice × OpTrades	-0.077*** (-3.22)			
OpTrades	0.038*** (7.86)			
LVoice × OpTrades_OD		-0.082*** (-3.36)		
OpTrades_OD		0.039*** (8.02)		
LVoice × OpProfits			-0.017*** (-2.59)	
OpProfits			0.006*** (4.26)	
LVoice × OpProfits_OD				-0.014** (-2.11)
OpProfits_OD				0.008*** (5.92)
LVoice	0.213*** (2.69)	0.219*** (2.75)	-0.038*** (-4.07)	-0.050*** (-5.28)
NObs	33,450	33,269	411,276	393,062
Adj. <i>R</i> <sup>2</sup>	0.073	0.074	0.097	0.098
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

**Table 11**  
**The Effect of Labor Voice on Firm Performance**

This table reports the regression results of how labor affects firm performance through its restricting effect on opportunistic insider trading based on the following equation:

$$\text{Firm performance}_{i,t+1} = \alpha_0 + \beta_1 \text{IOpportunism}_{i,t} \times \text{LVoice}_{i,t-1} + \beta_2 \text{IOpportunism}_{i,t} + \beta_3 \text{LVoice}_{i,t-1} + \gamma' X_{i,t-1} + \epsilon_{i,t+1}$$

where *IOpportunism* alternatively represents (1) the frequency of opportunistic insider trading for all insiders (*OpTrades*) and for officers and directors only (*OpTrades\_OD*) and (2) insider trading profitability for all insiders (*OpProfits*) and for officers and directors only (*OpProfits\_OD*). We adopt three measures of firm performance as follows: Return on Assets in Columns (1)-(4), 3-year Sales Growth in Columns (5)-(8) and Tobin's Q in Columns (9)-(12). The unreported control variables (*X*) are *Turnover*, *Return*, *Analyst*, *IO*, *Leverage*, *Size*, and *BM*. Industry and year fixed effects are also included. The regressions are estimated at the firm level for *OpTrades* and *OpTrades\_OD* and at the insider transaction level for *OpProfits* and *OpProfits\_OD*. All variables are defined in Appendix A. The continuous variables are winsorized at the top and bottom 1% of the sample distribution. The *t*-statistics in parentheses are based on heteroskedasticity-consistent and firm-level clustered standard errors. The symbols \*\*\*, \*\*, and \* denote the significance at 1%, 5%, and 10% levels, respectively. NObs is the number of firm-year observations. The sample period is from 1996 to 2017.

Variable	Dep Var = Return on Assets			Dep Var = 3-Year Sales Growth			Dep Var = Tobin's Q					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
LVoice × OpTrades	-0.021*** (-3.75)				-0.034*** (-4.50)				-0.357*** (-9.01)			
OpTrades	0.014*** (12.40)				0.016*** (10.86)				0.162*** (17.71)			
LVoice × OpTrades_OD		-0.021*** (-3.71)				-0.033*** (-4.32)				-0.363*** (-9.15)		
OpTrades_OD		0.014*** (12.40)				0.017*** (10.87)				0.164*** (17.85)		
LVoice × OpProfits			-0.015*** (-2.60)				1.235 (1.07)				-0.159*** (-3.41)	
OpProfits			0.004*** (2.88)				-0.513 (-1.09)				-0.048*** (-4.22)	
LVoice × OpProfits_OD				-0.014** (-2.49)				1.288 (1.07)				-0.171*** (-3.63)
OpProfits_OD				0.004*** (3.13)				-0.522 (-1.08)				-0.046*** (-4.01)
LVoice	0.060*** (3.23)	0.058*** (3.21)	0.022 (1.53)	0.022 (1.55)	0.054** (2.16)	0.050** (2.05)	-0.851 (-1.36)	-0.846 (-1.37)	0.409*** (3.65)	0.403*** (3.64)	-0.540*** (-5.43)	-0.542*** (-5.39)
NObs	33,767	33,584	414,617	396,250	33,707	33,524	413,971	395,627	33,772	33,587	414,632	396,260
Adj. R <sup>2</sup>	0.241	0.241	0.224	0.224	0.158	0.159	0.005	0.005	0.378	0.378	0.435	0.435
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 12**  
**Return Predictability of Insider Trades in Unionized Versus Nonunionized Firms**

This table reports the regression results of future stock returns over the one-month, three-month and six-month horizon on the interaction term between the labor voice variable ( $LVoice$ ) and insider net purchase ratio ( $NPR$ ) as specified in the following equation:

$$Return_{i,t+1 \rightarrow t+k} = \alpha_0 + \beta_1 LaborVoice_{i,t} \times NPR_{i,t} + \beta_2 LaborVoice_{i,t} + \beta_3 NPR_{i,t} + \gamma X_{i,t} + \epsilon_{i,t},$$

where future stock returns,  $Return$ , are measured by raw stock returns in Columns (1)-(3), market-adjusted excess returns in Columns (4)-(6) and industry-adjusted excess returns in Columns (7)-(9).  $NPR$  is computed as the number of insider buys less the number of insider sales in the previous six months, scaled by the total number of insider trades.  $Labor\ Voice$  is alternatively measured by the firm's unionization ratio ( $LVoice$ ) and a binary variable,  $LVoice(Dummy)$ . The observations are at monthly intervals. All variables are defined in Appendix A. The continuous variables are winsorized at the top and bottom 1% of the sample distribution. The  $t$ -statistics in parentheses are based on heteroskedasticity-consistent and firm-level clustered standard errors. The symbols \*\*\*, \*\*, and \* denote the significance at 1%, 5%, and 10% levels, respectively. NObs is the number of firm-year observations. The sample period is from 1996 to 2017.

Panel A: Interaction between Insider Net Purchase Ratio (NPR) and LVoice

Variable	Raw Returns			Market-Adjusted Returns			Industry-Adjusted Returns		
	1-Month	3-Month	6-Month	1-Month	3-Month	6-Month	1-Month	3-Month	6-Month
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LVoice×NPR	-0.006*** (-2.79)	-0.023*** (-3.69)	-0.046*** (-4.09)	-0.006*** (-2.83)	-0.023*** (-3.81)	-0.047*** (-4.22)	-0.003 (-1.44)	-0.015*** (-4.08)	-0.029*** (-5.65)
NPR	0.005*** (12.12)	0.011*** (10.80)	0.019*** (9.94)	0.004*** (10.33)	0.009*** (9.00)	0.015*** (8.14)	0.003*** (8.09)	0.007*** (11.33)	0.011*** (12.79)
LVoice	-0.005** (-2.16)	-0.015** (-2.29)	-0.028** (-2.34)	-0.004* (-1.76)	-0.014** (-2.12)	-0.028** (-2.31)	-0.004* (-1.72)	-0.013*** (-3.66)	-0.026*** (-4.93)
NObs	337,706	337,706	337,706	337,706	337,706	337,706	337,706	337,706	337,706
Adj. $R^2$	0.015	0.056	0.072	0.007	0.021	0.036	0.005	0.014	0.021
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 12 – Continued  
Return Predictability of Insider Trades in Unionized Versus Nonunionized Firms

Variable	Panel B: Interaction between Insider Net Purchase Ratio (NPR) and LVoice(Dummy)											
	Raw Returns			Market-Adjusted Returns			Industry-Adjusted Returns					
	1-Month	3-Month	6-Month	1-Month	3-Month	6-Month	1-Month	3-Month	6-Month	1-Month	3-Month	6-Month
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
LVoice (Dummy) × NPR	-0.002*** (-3.54)	-0.007*** (-3.92)	-0.013*** (-3.87)	-0.002*** (-3.34)	-0.007*** (-3.94)	-0.013*** (-4.06)	-0.002*** (-2.71)	-0.005*** (-3.19)	-0.009*** (-3.05)	-0.002*** (-2.71)	-0.005*** (-3.19)	-0.009*** (-3.05)
NPR	0.005*** (12.14)	0.012*** (10.88)	0.021*** (10.12)	0.004*** (10.40)	0.010*** (9.19)	0.017*** (8.45)	0.003*** (8.29)	0.007*** (7.24)	0.012*** (6.37)	0.003*** (8.29)	0.007*** (7.24)	0.012*** (6.37)
LVoice (Dummy)	-0.001** (-2.19)	-0.003* (-1.90)	-0.006* (-1.93)	-0.001* (-1.80)	-0.003* (-1.87)	-0.007** (-2.01)	-0.001** (-2.16)	-0.004** (-2.29)	-0.007** (-2.22)	-0.001** (-2.16)	-0.004** (-2.29)	-0.007** (-2.22)
NObs	361,479	361,479	361,479	361,479	361,479	361,479	361,479	361,479	361,479	361,479	361,479	361,479
Adj. $R^2$	0.016	0.056	0.073	0.007	0.022	0.036	0.005	0.014	0.022	0.005	0.014	0.022
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Appendix A**  
**Variable Definition and Data Source**

Variable	Definition and Data Source
<b>Measures of Opportunistic Insider Trading (<i>IOpportunism</i>)</b>	
OpTrades	The natural log of one plus the number of opportunistic insider trades made by all insiders in a given year, where opportunistic trades are transactions made by nonroutine traders; the definition of routine traders follows CMP. (Thomson Reuters insiders filing data)
OpTrades_OD	The natural log of one plus the number of opportunistic insider trades made by officers and directors in a given year, where opportunistic trades are transactions made by nonroutine traders; the definition of routine traders follows CMP. (Thomson Reuters insiders filing data)
OpProfits	The risk-adjusted abnormal stock returns estimated from Fama and French's (2015) five-factor model over the 180 trading days following the insider transaction date, expressed in percentage. (Thomson Reuters insiders filing data; CSRP)
OpProfits_OD	The risk-adjusted abnormal stock returns estimated from Fama and French's (2015) five-factor model over the 180 trading days following the insider transaction date for trades made by officers and directors, expressed in percentage. (Thomson Reuters insiders filing data; CSRP)
Fraction of Quintile 5 Insiders	Fraction of insiders whose all past pre-QEA trading profits are ranked in top quintile (quintile 5) following Ali and Hirschleifer's (2017) method. (Thomson Reuters insiders filing)
<b>Proxies for Labor Voice</b>	
LVoice	The proportion of unionized employees divided by the total number of employees at the end of previous year. (SEC 10-K filings)
LVoice (Dummy)	A dummy variable that takes a value of one if the firm is unionized and zero if otherwise. (SEC 10-K filings)
LVoice <sub>Ind</sub>	Product of the proportion of union members in the firm's industry and the firm's labor intensity, where labor intensity refers to the total number of employees scaled by total assets. (Union membership and coverage)
<b>Identification Strategy Variables</b>	
Pass	A dummy variable that takes the value of one if the firm narrowly passes the union election and zero if otherwise. (National Labor Relations Board)
RTW	A dummy variable that takes the value of one if the firm is located in the states that adopted the RTW law during our sample period and zero if otherwise. (National Conference of State Legislatures)
Post	A dummy variable that takes the value of one if the observation is in the year after the adoption of the RTW law.
<b>Mechanism Variables</b>	
EnvSoc	A dummy variable that takes the value of one if the firm's environmental and social score is above the sample median and zero if otherwise. (MSCI KLD)
Employees	A dummy variable that takes the value of one if the firm's employee relations score is above the sample median and zero if otherwise. (MSCI KLD)
UFund	A dummy variable that takes the value of one if the union pension fund initiates a shareholder proposal in the previous year and zero if otherwise. (ISS)
DowJones	A dummy variable that takes the value of one if the firm primarily operates in the same state as one of the eight Dow Jones news broadcasting offices and zero if otherwise. (Dow Jones website)
Democratic	A dummy variable that takes the value of one during the periods when the US president is from the Democratic Party and zero if otherwise. (Wikipedia)
<b>Economic Consequence Variables</b>	
IllegalCount	The number of illegal insider cases in a given firm-year. (SEC website)
IllegalDummy	A dummy variable that takes the value of one if there is at least one illegal insider trading case in a given firm-year and zero if otherwise. (SEC website)
Total factor productivity	The residuals from estimating the log transformed Cobb-Douglas production function: $Y_{i,t} = \alpha L_{i,t}^\beta K_{i,t}^{1-\beta}$ , where $L$ is the number of employees, and $K$ is net property, plant and equipment. (Compustat)
Return on Assets	Earnings before interest and tax scaled by total assets. (Compustat)
3-Year Sales Growth	The average sales growth rate in the preceding three years. (Compustat)

**Appendix A - Continued**  
**Variable Definition and Data Source**

<b>Variable</b>	<b>Definition and Data Source</b>
<b>Economic Consequence Variables</b>	
Tobin's Q	the sum of market value of equity and book value of debt divided by total assets. (Compustat)
NPR	The number of insider buys less the number of insider sales in the previous six months, scaled by the total number of insider trades. (Thomson Reuters insider filings)
<b>Other Variables</b>	
Turnover	Daily trading volume divided by the number of shares outstanding across all trading days in the previous year. (CRSP)
Return	Buy-and-hold stock return over the 240-trading day period ending one day before the first insider transaction in a given year. (CRSP)
IO	The proportion of shares held by institutional investors at the end of previous year. (Thomson Reuters institutional holdings (13F))
Analyst	The number of analysts following the company at the end of previous year. (I/B/E/S)
Leverage	The sum of long-term debt and current liabilities scaled by total assets in the previous year. (Compustat)
Size	The natural log of stock market capitalization in the previous year. (Compustat)
BM	The book value of common equity to market capitalization. (Compustat)
EO	The log of one plus the market value of total employee equity ownership divided by the firm's total employees in the previous year. (Form 5500 filings from the US Department of Labor website)
Excess Pay	The residuals from our estimated worker wage model. Following Masulis, Wang and Xie (2019), we use labor related expense per per employee (XLR/EMP) as the dependent variable of our model, where we require firms to have at least 100 employees. In the regression, we control for firm size, market-to-book, leverage, ROA, industry-average worker wage, capital-to-labor ratio (i.e. the book value of assets per employee), sales per employee, and the fraction of depreciated assets. (Compustat)
Takeover Target	A dummy variable that takes value of one for firm-years that receive at least one takeover bid from potential acquirors and zero if otherwise. (SDC Platinum)
Takeover Vulnerability	The entrenchment index (E-index) based on six anti-takeover provisions proposed by Bebchuk, Cohen and Ferrell (2009). A higher index indicates lower susceptibility to takeover threat. (ISS)
Strike	A dummy variable that takes the value of one for firm-years that underwent labor strikes and zero if otherwise. (Bloomberg BNA Labor Plus)
BoardSize	The natural log of the number of directors on board. (RiskMetrics)
BoardInd	The proportion of independent directors in the board room. (RiskMetrics)
Fluidity	A "cosine" similarity between a firm's products and the changes in the competitors' products. (Hoberg, Phillips, and Prabhala, 2014)
LSkill	The weighted average skill level of occupations in a given industry. (BLS and the US Department of Labor)
ZScore	Altman's (1968) Z-score computed based on equation (1) in Altman (1968). (Compustat)
EM	Absolute value of accounting accruals divided by previous-year total assets, where the accrual component of earnings is computed as follows: $Accruals = [(\Delta CA_{i,t} - \Delta Cash_{i,t}) - (\Delta CL_{i,t} - \Delta STD_{i,t} - \Delta TP_{i,t}) - Dep_{i,t}]$ , where $CA_{i,t}$ = change in total current assets, $\Delta Cash_{i,t}$ = change in cash account, $\Delta CL_{i,t}$ = change in total current liabilities, $\Delta STD_{i,t}$ = change in short term debt, $\Delta TP_{i,t}$ = change in income tax payable, $Dep_{i,t}$ = the depreciation and amortization expense. (Compustat)

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Opportunistic Insider Trading



**Table OA1**  
**Correlation Matrices**

This table reports the correlation coefficients between key variables at the firm level in Panel A and insider trade level in Panel B. *OpTrades* and *OpTrades\_OD* are the natural log of one plus the number of opportunistic trades made by all insiders and by officers and directors in a given year, respectively. *OpProfits* (*OpProfits\_OD*) is the abnormal returns over the window [1, 180] relative to the insider transaction date for all insiders (for officers and directors only). *LVoice* represents firm-level unionization ratio. *Turnover* is daily trading volume. *Return* is prior stock return. *Analyst* is the number of analyst forecasts. *IO* is institutional ownership. *Leverage* is financial leverage. *Size* is firm size. *BM* is book-to-market ratio. All variables are defined in Appendix A. The continuous variables are winsorized at the top and bottom 1% of the sample distribution. The sample period is from 1996 to 2017.

Panel A: Firm-Level Correlations between Key Variables (i.e., OpTrades and LVoice) and Control Variables									
Variable	LUnion	OpTrades	OpTrades_OD	Turnover	Return	Analyst	IO	Leverage	Size
OpTrades	-0.033***								
OpTrades_OD	-0.036***	0.988***							
Turnover	-0.061***	0.205***	0.203***						
Return	-0.028***	0.170***	0.170***	0.200***					
Analyst	0.048***	0.205***	0.200***	0.232***	-0.087***				
IO	0.074***	0.188***	0.182***	0.205***	-0.103***	0.390***			
Leverage	0.205***	-0.058***	-0.063***	-0.071***	-0.076***	0.098***	0.096***		
Size	0.114***	0.290***	0.283***	0.194***	-0.003	0.772***	0.501***	0.120***	
BM	0.062***	-0.216***	-0.212***	-0.164***	-0.202***	-0.216***	-0.066***	0.108***	-0.405***

Panel B: Insider Trade-Level Correlations between Key Variables (i.e., OpProfits and LVoice) and Control Variables									
Variable	LVoice	OpProfits	OpProfits_OD	Turnover	Return	Analyst	IO	Leverage	Size
OpProfits	-0.026***								
OpProfits_OD	-0.027***	0.999***							
Turnover	-0.077***	0.052***	0.055***						
Return	-0.036***	0.225***	0.229***	0.174**					
Analyst	-0.009***	0.023***	0.026***	0.281***	-0.079***				
IO	0.054***	-0.052***	-0.051***	0.156***	-0.126***	0.347***			
Leverage	0.209***	-0.094***	-0.095***	-0.116***	-0.087***	0.053***	0.106***		
Size	0.065***	0.043***	0.047***	0.164***	-0.091***	0.789***	0.447***	0.115***	
BM	0.097***	-0.163***	-0.166***	-0.176***	-0.108***	-0.278***	-0.062***	0.129***	-0.387***

**Appendix Table OA2**  
**Labor Voice, Employee Opportunism, and Insider Trading Opportunism**

This table tests the effects of labor voice and employee opportunism on insider opportunism by running the following model,

$$IOpportunism_{i,t} = \alpha_0 + \beta_1 LVoice_{i,t-1} + \beta_2 EOpportunism_{i,t-1} + \beta_3 LVoice_{i,t-1} \times EOpportunism_{i,t-1} + \gamma' X_{i,t-1} + \epsilon_{i,t},$$

where *IOpportunism* alternatively represents (1) the frequency of opportunistic insider trading for all insiders (*OpTrades*) and for officers and directors only (*OpTrades\_OD*) and (2) insider trading profitability for all insiders (*OpProfits*) and for officers and directors only (*OpProfits\_OD*). *LVoice* is the firm's unionization ratio. *EOpportunism* is proxied by excess employee pay, a firm as a target for takeover, and a firm's high Entrenchment Index. The list of control variables includes *Turnover*, *Return*, *Analyst*, *IO*, *Leverage*, *Size*, and *BM*. Industry and year fixed effects are also included. The regressions are estimated at the firm level for the frequency of opportunistic trading measures and at the insider trade level for the insider trading profitability measures. All variables are defined in Appendix A. The continuous variables are winsorized at the top and bottom 1% of the sample distribution. The *t*-statistics in parentheses are based on heteroskedasticity-consistent and firm-level clustered standard errors. The symbols \*\*\*, \*\*, and \* denote the statistical significance at 1%, 5%, and 10% levels, respectively. *NObs* is the number of firm-year observations. The sample period is from 1996 to 2017.

Variable	Dep Var = OpTrades		Dep Var = OpProfits		Dep Var = OpTrades		Dep Var = OpProfits		Dep Var = OpTrades		Dep Var = OpProfits	
	All Insiders	Officers/ Directors	All Insiders	Officers/ Directors	All Insiders	Officers/ Directors	All Insiders	Officers/ Directors	All Insiders	Officers/ Directors	All Insiders	Officers/ Directors
	EOpportunism=Excess Pay		EOpportunism=Takeover Target		EOpportunism=High Entrenchment Index		EOpportunism=High Entrenchment Index		EOpportunism=High Entrenchment Index		EOpportunism=High Entrenchment Index	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>LVoice</i> x	0.249	0.213	-0.176	-0.211	-0.392***	-0.397***	-0.061	-0.098	0.289	0.228	-0.300**	-0.315**
<i>EOpportunism</i>	(0.71)	(0.60)	(-0.92)	(-1.13)	(-2.97)	(-3.05)	(-0.64)	(-1.01)	(1.25)	(0.99)	(-2.43)	(-2.46)
<i>EOpportunism</i>	0.106	0.111	-0.051	-0.055	-0.004	-0.006	-0.025**	-0.027***	-0.131***	-0.128***	0.018	0.017
	(1.26)	(1.34)	(-0.94)	(-1.01)	(-0.26)	(-0.40)	(-2.57)	(-2.69)	(-3.50)	(-3.39)	(1.29)	(1.20)
<i>LVoice</i>	-0.650**	-0.598*	0.015	0.034	-0.080	-0.103	-0.188**	-0.176**	-0.402**	-0.425**	0.004	0.003
	(-2.02)	(-1.84)	(0.07)	(0.17)	(-0.77)	(-0.98)	(-2.27)	(-2.05)	(-1.99)	(-2.11)	(0.07)	(0.05)
<i>NObs</i>	2,004	1,997	22,527	21,491	33,515	33,333	414,737	396,357	12,845	12,798	179,503	171,440
Adj. <i>R</i> <sup>2</sup>	0.209	0.205	0.329	0.325	0.189	0.185	0.318	0.318	0.168	0.165	0.449	0.445
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table OA3**  
**Instrumental Variable Analyses – 2SLS Regressions**

This table reports the estimation results from the following 2SLS regressions.

$$\text{1st-Stage: } LVoice_{i,t} = \alpha_0 + \beta_1 Heavywork_{j,t} + \gamma' X_{i,t} + \epsilon_{i,t},$$

$$\text{2nd-Stage: } IOpportunism_{i,t+1} = \alpha_0 + \beta_1 \widehat{LVoice}_{i,t} + \gamma' X_{i,t} + \epsilon_{i,t}.$$

In the first stage regression, we regress the firm-level unionization ratio, *LVoice*, on an instrumental variable, *Heavywork*, as well as other firm characteristic variables. In the second stage, we then regress opportunistic insider trading measures (*IOpportunism*) on *LVoice* estimated from the first stage regression. *Heavywork* denotes the proportion of female workers employed in heavy work occupations for a given industry where heavy work occupations comprise (1) natural resources, construction, and maintenance occupations and (2) production, transportation, and material moving occupations. This information is from the Bureau of Labor Statistics. *Opportunism* alternatively represents (1) frequency of opportunistic insider trading for all insiders (*OpTrades*) and for officers and directors only (*OpTrades\_OD*) and (2) insider trading profitability for all insiders (*OpProfits*) and for officers and directors only (*OpProfits\_OD*). The list of unreported control variables includes stock trading turnover (*Turnover*), prior stock return (*Return*), number of analyst forecasts (*Analyst*), institutional ownership (*IO*), financial leverage (*Leverage*), firm size (*Size*), and book-to-market (*BM*). Industry and year fixed effects are also included. All the variables are defined in Appendix A. The continuous variables are winsorized at the top and bottom 1% of the sample distribution. The *t*-statistics in parentheses are based on heteroskedasticity-consistent standard errors. The symbols \*\*\*, \*\*, and \* denote the significance at 1%, 5%, and 10% levels, respectively. NObs is the number of firm-year observations. The sample period is from 1996 to 2017.

Variable	All Insiders		Officers/Directors		All Insiders		Officers/Directors	
	1st-Stage	OpTrades	1st-Stage	OpTrades_OD	1st-Stage	OpProfits	1st-Stage	OpProfits_OD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\widehat{LVoice}$								
Heavywork	0.053*** (15.38)	-3.510*** (-4.19)	0.054*** (15.37)	-3.285*** (-3.96)	0.048*** (54.48)	-0.265** (-2.36)	0.047*** (52.81)	-0.254** (-2.17)
NObs	19,001	19,001	18,911	18,911	256,246	256,246	244,971	244,971
Adj. $R^2$	0.073	0.067	0.073	0.072	0.075	0.541	0.074	0.537
Year FE	Year	Year	Year	Year	Year	Year	Year	Year
Partial F-stat	236.5	236.3	236.3	236.3	2,968.2	2,788.6	2,788.6	2,788.6
Hausman <i>p</i> -value	0.000	0.000	0.000	0.000	0.015	0.015	0.02	0.02