Is the gig up? The impact of worker-status reclassification regulation on shareholder value [1]

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Abstract

We examine the shareholder value effects of recent US and EU worker-status reclassification regulations (WSRR) requiring companies to classify gig economy workers as regular employees. Using a policy event study methodology on a global sample of gig economy companies, we document negative average stock price reactions to announcements of WSRR events. Stock price reactions are more favorable for gig economy companies with a higher ex ante financial flexibility and better labor conditions, suggesting shareholders anticipate WSRR to affect firms' costs and reputation. Corroborating the shareholder expectations reflected in the event study results, difference-in-differences estimations indicate gig economy companies have higher costs, a higher leverage, worse credit ratings, and improved labor conditions following WSRR. Our findings, which withstand several robustness tests, highlight the existence of substantial economic benefits for gig economy companies of relying on precarious labor and inform the policy debate on worker-status legislation.

Keywords: Gig economy, independent contractor, worker-status reclassification regulation, shareholder value, financial flexibility, labor conditions

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1. Introduction

The gig economy consists of a fast-growing pool of short-term independent contractors and freelancers (Oppong, 2018). Gig economy workers are estimated to reach 435 million globally, accounting for 12% of the global labor force (The World Bank, 2023). Whilst gig economy workers can in theory decide independently on their workload and schedules, it has been argued that their companies effectively control the fares, wages, assignments of tasks, rating structures, continuation or termination of contracts, and other terms of service for these workers. An often-heard argument is, therefore, that gig economy workers should be classified as employees (Page-Tickell and Yerby, 2020; Erlich, 2021).

Against this backdrop, new regulations on worker-status reclassification targeted at the gig economy are emerging. In the United States (US), California passed Assembly Bill 5 (AB5) in 2019 to distinguish employees from independent contractors (California Assembly Bill No. 5, 2019), with other US states and the federal government following suit. The European Commission, in turn, published rules calling for gig economy workers in the European Union (EU) to be classified as employees (European Council, 2024).

The business press provides some accounts on the potential far-reaching cash flow effects of worker-status reclassification regulations (henceforth WSRR) for prominent gig economy companies. For example, Wall Street analysts estimate the WSRR in California alone could cost gig economy companies Uber Technologies Inc. (NYSE: UBER, henceforth Uber) and Lyft, Inc. (NASDAQ: LYFT, henceforth Lyft) $290 million each year (Rapier, 2019). The EU Commission, in turn, estimates prices for services provided by gig economy companies such as Uber may increase by 40% following the introduction of EU WSRR (Espinoza, 2023a). Uber meanwhile warns that the EU WSRR may force it to cease operating in hundreds of cities (Espinoza, 2023b). Notwithstanding this anecdotal evidence, systematic findings on the cash flow consequences of the WSRR for gig economy companies are missing.

Our paper fills this gap in the literature by examining the stock price reactions of gig economy companies to events associated with an increased likelihood of WSRR adoption, using a policy event study methodology (Grewal et al., 2019; Jacobs et al., 2022; Pan et al., 2022). Focusing on shareholder value provides two key advantages over studying accounting metrics like profits or cash flows. First, while accounting metrics are backward-looking, shareholder value captures shareholders' anticipations of future cash flows, accounting for their timings and risk (Edmans, 2011; Brealey et al., 2023). Second, while accounting metrics are only recorded at a quarterly or annual frequency, share prices in semi-strong form efficient markets move immediately upon any cash-flow-relevant announcement (Fama, 1970), thereby allowing us to study the cash flow implications of events instantaneously, without having to wait for the actual cash flow changes to materialize (Eden et al., 2022). This is a particularly attractive feature for our empirical design, given the recent nature of the WSRR considered in our study.

Drawing from the resource-based theory on the firm, we develop a conceptual framework on the shareholder value effects of WSRR. Resource-based theory argues that valuable, costly-to-imitate firm resources and capabilities provide the key sources of sustainable competitive advantage to firms (Wernerfelt, 1984; Porter, 1985; Barney, 1991; Barney et al., 2011). Gig economy companies leverage the labor of independent contractors. This reliance on independent contractors brings two main competitive advantages: lower costs, by avoiding the additional labor and administrative costs associated with formal employment structures (Houseman, 2001; Schwellnus et al., 2019; Internal Revenue Service, 2023), and a higher strategic agility, defined as a firm's ability to respond rapidly to environmental changes through a set of activities (Weber and Tarba, 2014; Felipe et al., 2016). We argue that WSRR may erode these competitive advantages, by forcing gig economy companies to switch wrongly-classified independent contractors to a regular employee status. Specifically, this change from flexible to

fixed employment may come with additional costs for health insurance, paid leave, training and development, and payroll administration, among others, thereby eroding gig economy companies' cost advantage. WSRR may diminish gig economy companies' ability to rapidly adjust their service capacity to market demand fluctuations (Khalaf, 2023), thereby eroding their strategic agility. Resource-based theory also identifies a firm's reputation as a crucial driver of sustained competitive advantages (Fombrun and Shanley, 1990; Deephouse, 2000; Boyd et al., 2010). WSRR may heighten stakeholders' awareness of gig economies' prevailing practice of employee misclassification, resulting in a reduced reputation of the affected companies and an associated drop in cash flows, e.g. through consumer boycotts or a reduced willingness of capable employees to work for these companies (Pigors and Rockenbach, 2016; Deng and Xu, 2017). To the extent shareholders anticipate these cash-flow-reducing effects of WSRR as of the time of WSRR announcements, which should be the case in semi-strong form efficient stock markets (Fama, 1970), we predict WSRR announcements to result in a negative stock price reaction (H_1).

We next propose two boundary mechanisms affecting the relation between WSRR announcements and shareholder value. A straightforward corollary of H_1 is that gig economy companies with a higher ex ante financial flexibility should find it more straightforward to deal with the increased costs provoked by WSRR, by obtaining external funding or engaging in cost-cutting innovations (Ang and Smedema, 2011; Ferrando et al., 2017; Fahlenbrach et al., 2021; Barry et al., 2022; Bena et al., 2022). This yields our second hypothesis H_2 predicting a positive moderating impact of financial flexibility proxies on stock price reactions to WSRR announcements. Another straightforward corollary of the arguments underpinning H_1 is that better ex ante labor conditions may cushion firms against the adverse reputational effects of WSRR. This yields our third hypothesis H_3 predicting a positive moderating impact of ex ante labor conditions on stock price reactions to the WSRR announcements.

To identify events associated with an increased likelihood of WSRR adoption in the US or EU (henceforth, 'WSRR events'), we use 'bag of words' keyword searches in Factiva, thereby identifying 2,388 news sources between 2018, the year of the first WSRR event affecting gig economy companies in California, and December 2022, the end of our research window. Our in-depth readings of these sources generate 16 unique WSRR events. We construct a comprehensive gig economy-related keyword list and identify a global sample of companies that have an association with these keywords above a certain threshold, as per Factiva sources, as companies belonging to the gig economy ecosystem. Within this set of companies, we categorize a company as a gig economy company if the Factiva news sources, the company's official website, or the company's 10-K fillings mention that the company directly hires or requires independent contractors as a part of the labor force for its own business activities. The remainder of the gig economy ecosystem companies, which claim to serve rather than hire independent contractors, mostly consist of human resources and payment processing companies – we label these companies gig economy facilitators.[2] Our sample contains 113 gig economy companies and 60 gig economy facilitators. Most of our sample firms (76%) are US-domiciled.

Our empirical design presumes a unilateral regulatory globalization of the WSRR, implying the California and EU WSRR can affect shareholder cash flow expectations for gig economy companies outside these regions. This assumption is reasonable for three reasons. First, gig economy companies tend to have multinational operations and be regulated by multinational labor rules. Second, the increase in the use of remote-working independent contractors for digital work opportunities may further amplify the cross-boundary impact of WSRR (PwC

[2] Uber Technologies Inc. (NYSE: UBER), Lyft, Inc. (NASDAQ: LYFT), and Deliveroo plc (LSE: ROO) are the most often mentioned gig economy companies, and Adecco Group AG (SWX: ADEN), Intuit Inc. (NASDAQ: INTU), and ManpowerGroup Inc. (NYSE:MAN) are the most often mentioned gig economy facilitators according to the Factiva sources. Section 5.1 provides more information on the classification of gig economy company and facilitator.

Legal, 2022; Rainone, 2023).[3] Third, and more importantly, as the main battleground for WSRR, California and EU regulations are widely perceived as a crucial driver of unilateral regulatory globalization, with regulations originating from these regions being likely to penetrate the global marketplace as per the often-documented 'California' and 'Brussels' effects (Bradford, 2012, Perkins and Neumayer, 2012).[4] [5] The WSRR we study are generally perceived as a precursor of similar regulations in other countries (Paul, 2020; PwC Legal, 2022; Prakash, 2023). Altogether, in a semi-strong form efficient market, shareholders should recognize the cross-border cash flow effect of WSRR on a global sample of gig economy companies and react to the related announcements immediately (Fama, 1970).

Using a standard policy event study method (Grewal et al., 2019; Jacobs et al., 2022; Pan et al., 2022), we first examine the univariate stock price reactions to the 16 WSRR events. Consistent with H_1, we find the stock prices of gig economy companies react negatively to these events. The median cumulative abnormal stock return per event is −0.12% (*p*-value of 0.00), translating in a market value reduction of approximately $20.16 million within five days around each WSRR event for a typical gig economy company.[6, 7, 8] In contrast, we do not find significant stock price reactions to four additional events decreasing the likelihood of the

[3] For example, UK-domiciled gig economy companies could be affected by EU WSRR due to employment status changes of their remote-working independent contractors in EU member states following the regulations (PWC, 2022).

[4] For WSRR, California's initiative has also been followed by other states. Our WSRR event list also contains the events increasing the likelihood of WSRR adoption in Massachusetts.

[5] Many gig economy companies, such as Uber Technologies Inc. (NYSE: UBER), Lyft, Inc. (NASDAQ: LYFT), DoorDash, Inc. (NASDAQ: DASH), and Upwork Inc. (NASDAQ: UPWK), are headquartered in California. Corporate headquarters are the center of information exchange among the firm, investors, and other stakeholders (Pirinsky and Wang, 2006; Collis et al., 2012). The Guardian says, "California is the birthplace of the gig economy, and how it is regulated in its home state may have effects on how regulation plays out in the rest of the country, and the world" (Paul, 2020).

[6] Here we report the *p*-value of the *Adjusted Patell test*, which accounts for cross-sectional correlation caused by event-date clustering (Kolari and Pynnönen, 2010). We also report the results of the *t-test*, *Standardized cross-sectional test*, and *Generalized sign test* in the empirical study section.

[7] Following the method of Krüger (2015), the median market value change is the product of the median sample market capitalization and the median five-day (−2,2) cumulative abnormal return. The average market value reduction of gig economy companies is approximately $509 million per event in the five-day (−2,2) window.

[8] Krüger (2015) finds a median market value reduction of approximately $29 million for a typical negative CSR event in an eleven-day (−5,5) window. We find a median market value reduction of approximately $45 million per WSRR event for a gig economy company in the same event window. The magnitudes of economic significance are similar.

adoption of WSRR. To supplement our sample, we include constituent companies of the SoFi Gig Economy Exchange-Traded Fund (ETF) (NYSE: GIGE), and obtain similar results. WSRR may also affect anticipated cash flows of gig economy facilitators, since the financial effects of major corporate events can propagate through the supply chain (Barrot and Sauvagnat, 2016; Jacobs and Singhal, 2017). Consistent with this conjecture, we find a median negative stock price reaction of −0.35% (*p*-value of 0.00) per event for gig economy facilitators. Beyond the main analysis adopting the market model, our findings of negative stock price reactions are also robust under the market adjusted model. These negative stock price reactions do not reverse in the long term.

We next investigate cross-sectional differences in stock price reactions to WSRR events. Consistent with H_2, we find stock price reactions are less negative for gig economy companies with a higher financial flexibility, proxied by a higher profitability, a higher proportion of current assets, a higher credit rating, a higher interest coverage, a higher dividend payout, lower costs of goods sold, lower labor-related expenses, and a lower labor intensity. Financial flexibility proxies affect stock price reactions of gig economy facilitators in the same direction. Consistent with H_3, in turn, stock price reactions are more favorable for gig economy companies and facilitators with more favorable labor conditions, as proxied by fewer employee-related controversies, a better workforce treatment, a higher employee satisfaction, a higher trade union representation, and a lower labor intensity.[9] Our cross-sectional regression results of stock price reactions to WSRR events withstand robustness tests using alternative fixed effects, alternative measures for stock price reactions, alternative measures for independent variables, and placebo tests.

[9] We consider *Labor Intensity* as a proxy variable for both hypotheses H_2 and H_3, and the predicted impact is mixed. *Labor Intensity* may effectively act as an inverse proxy of financial flexibility and complement the results of *Labor Expenses*, as firms with a higher reliance on human labor have more labor expenses to pay. Otherwise, firms with a low *Labor Intensity* may be more exposed to the WSRR, since they have comparatively fewer formal employees and therefore potentially more wrongly-classified independent contractors, implying unfavorable labor conditions. We provide more information in Section 5.3.

In the next part of our empirical analysis, we use propensity-score-matching (*PSM*) followed by difference-in-differences (*DID*) estimations to examine the real firm outcomes of WSRR on gig economy companies' financial position and labor condition outcomes. If WSRR affect the cash flows of gig economy companies in line with shareholder anticipations, we should find evidence of an increase in these firms' costs and an overall deterioration of their financial position, caused by the incremental labor-related expenses provoked by WSRR. Moreover, we may find an improvement in labor conditions, as gig economy companies may try to mitigate potential concerns about the reputational effects of a stronger stakeholder scrutiny of their employee misclassification risk following WSRR. Consistent with these predictions, we find gig economy companies hire more regular employees, have higher labor-related costs and costs of goods sold, increase their financial leverage, suffer a decline in credit ratings, and have fewer employee-related controversies following the adoption of WSRR. Almost all results survive robustness tests using an extended sample combining firms collected from Factiva news sources and holdings of SoFi Gig Economy ETF.

To our knowledge, our paper is the first to examine the shareholder wealth effects and real firm outcomes of WSRR on gig economy companies and their facilitators. Overall, our findings suggest WSRR affect shareholder value negatively, with abnormal stock returns reflecting shareholders' concerns about the cost and reputational effects of these measures. We find a worsened financial position but improved labor conditions for gig economy companies following WSRR adoption, suggesting the real outcomes of these regulations match shareholder expectations.

The remainder of this paper is structured as follows. Section 2 positions our paper in the literature. Section 3 introduces the background of WSRR events. In Section 4, we develop the testable hypotheses. In Section 5, we document the sample construction and methodology. Section 6 presents the univariate and regression results on the shareholder value effects of

WSRR. Section 7 presents the method and analysis of real firm outcomes of WSRR. Section 8 concludes the paper and outlines limitations and avenues for future research.

2. Positioning in the literature

Our paper contributes to the following four strands of literature. First, we add to a growing literature on the impact of precarious labor on corporate decisions and performance indicators, including capital structure (Kuzmina, 2023), cash levels (Hahn et al., 2021), payout policy (Hwang and Kahle, 2023), innovation (Martínez-Sánchez et al., 2011), cost of equity (Chino, 2021), and overall firm performance (Lepak et al., 2003; Ha, 2022). Most closely related to our paper, Hwang and Kahle (2023) examine the effect of a 2004 Massachusetts state law discouraging the use of independent contractors on firms' operational performance and share repurchase decisions. They find the affected Massachusetts firms have an increase in labor-related expenses, a decrease in profitability, and a decrease in share repurchases. We instead focus on the effects of recent WSRR in the era of online labor platforms, which intensify and modify the traditional employment misclassification phenomenon as the affected companies have a reliance on independent contractors as a key element of their business model (Pinsof, 2016; Schwellnus et al., 2019). We estimate stock price reactions with the boundary mechanisms of financial flexibility and labor conditions as our key focus, while Hwang and Kahle (2023) focus on the law's impact on profitability and share repurchases. Similarly, they also document a negative stock price reaction of affected firms to the law adoption announcement.

Second, we contribute to a more established literature on the association between labor conditions (as captured by employee-friendliness, employee protection, or employee satisfaction) and corporate decisions and performance, including capital structure (Verwijmeren and Derwall, 2010; Bae et al., 2011; Simintzi et al., 2015), cash holdings (Ghaly

et al., 2015; Beuselinck et al., 2021), capital expenditure (Bai et al., 2020), payout policies (Dang et al., 2021), innovations (Acharya et al., 2014; Chen et al., 2016; Bena et al., 2022), mergers and acquisitions (Alimov, 2015; John et al, 2015; Dessaint et al., 2017), tax avoidance (Fairhurst et al., 2020), operating performance (Faleye and Trahan, 2011; Green et al., 2019; Huang et al., 2020), and shareholder value (Edmans, 2011, 2012; Fauver et al., 2018; Zuo et al., 2022; Shan and Tang, 2023; Edmans et al., 2023). Whilst these studies focus on cross-sectional variations in how companies treat their regular, formal employees, our study focuses on the shareholder wealth effects and real firm outcomes of a mandated shift in companies' reliance on independent contractors versus formal employees.

Third, we add to a growing economics and management literature on the gig economy. Previous studies focus on the gig economy's impact on households (Burtch et al., 2018), entrepreneurial business formation (Barrios et al., 2022), investments in physical capital (Buchak, 2024), product quality (Shin et al., 2023), organizational behavior (Ai et al., 2023; Xu et al., 2023), labor supply flexibility (Chen et al., 2019), as well as the business strategies of gig economy platforms (Chung et al., 2024; Liu et al., 2024). Studies in Human Resource Management acknowledge that recent developments in algorithmic management adopted by online labor platforms challenge the basic assumptions of distinct firm boundaries, explicit employment modes, and complete control over human resources (Luo et al., 2021; Keegan and Meijerink, 2023), and are calling for new frameworks to incorporate the substantial upheaval in the world of work associated with online platforms and gig economy workers (Duggan, 2020; Cross and Swart, 2022). We study the gig economy through a shareholder lens, using WSRR as a quasi-natural experiment to quantify the cash flow implications for firms of a switch from independent contractors to regular employees.

Lastly, on a broader level, our paper relates to the literature examining the firm-level impact of a mandated enhancement of corporate social responsibility, of which firms' treatment of

their employees is arguably an element. Previous studies have addressed the impact of Wrongful Discharge, Right-to-Work, and Minimum Wage laws on capital structure (Serfling, 2016; Chava et al., 2020), cash holdings (Beuselinck et al., 2021), payout policy (Dang et al., 2021), investment (Bai et al., 2020; Gustafson and Kotter, 2023), innovation (Acharya et al., 2014; Nguyen and Qiu, 2022), mergers and acquisitions (John et al, 2015), bankruptcy (Campello et al., 2018), and firm performance (Bird and Knopf, 2009; Chava et al., 2023). Outside the traditional US context, Cui et al. (2018) document an impact of China's Labor Contract law on corporate cash holdings, Cousins et al. (2020) examine the shareholder wealth effects of the UK's Modern Slavery Act on shareholder value, Ha (2022) studies the impact of Korea's Occupational Health and Safety Act on profitability and workplace safety investment, and Dutordoir and Struyfs (2024) examine shareholder wealth effects of compressed workweek legislation in Belgium. Our paper adds to the literature by examining the shareholder value effects of WSRR in the US and EU, which to the best of our knowledge have not been covered yet in the literature, despite their potential substantial cash flow implications.

3. Worker-status reclassification regulation events

Through exploratory online searches of global news sources in Factiva, we identify two main geographical areas in which WSRR have been developed and been predicted to act as a prelude to further regulations, namely the US (especially California) and the EU. In the interest of feasibility, we focus our further analysis on the events occurring in these two major regions.

The WSRR targeted at gig economy companies started with California's 'ABC test' determining whether gig economy workers are classified as employees or independent contractors. This test, followed by subsequent regulations, was established through a landmark case decided by the California Supreme Court ('Dynamex Operations West, Inc. v. Superior

Court of California') in 2018. Accordingly, we begin our research window for WSRR events on January 1, 2018. We end our search on December 31, 2022.

We adopt keyword searches in Factiva to identify WSRR events. Using 'independent contractor' and 'gig economy' as keywords and first restricting the region to the US, we find 1,643 news sources. We read each of these sources to identify unique US WSRR events, defined as announcements that provide incremental information related to an increase in the likelihood of the adoption of WSRR for gig economy companies. We identify 13 such events. We also identify four events providing incremental news related to temporary setbacks for the regulations, suggesting a decrease in the likelihood of the adoption of WSRR. We adopt a similar approach for the EU WSRR events, using 'European Commission' and 'gig economy' as keywords, given the European Commission directly mentions 'gig economy' in the draft legislation. This leads us to identify three unique events from 745 Factiva news sources. The three EU events are all associated with an increased likelihood of WSRR adoption.

For each event, we collect the date of its first announcement ('announcement date') through a press release or news article, considering that stock prices in a semi-strong form efficient market react immediately and accurately upon the first release of cash-flow-relevant information (Fama, 1970). We define day 0 as the announcement date, except when according to time stamp information the announcement occurred after stock market closure or when the announcement occurred on a non-trading day. In those cases, we set day 0 as the first trading day following the announcement date, in line with Hendricks et al. (2015) and Cousins et al. (2020). Table 1, Panel A provides an overview of the resulting 16 WSRR events and corresponding announcement dates in the US and EU. Panel B provides the four events that may be associated with a decreased likelihood of WSRR adoption. Appendix A provides a more detailed description of the WSRR events.

<< Please insert Table 1 here >>

4. Stock price reactions to WSRR events: sign and moderators

Following semi-strong form market efficiency theory (Fama, 1970), stock price reactions to WSRR events will reflect shareholders' perceptions of the net cash flow effects of these regulations. We predict shareholders to anticipate net cash flow losses from the adoption of WSRR. Our rationale for this prediction draws from the resource-based theory on the firm, which argues that valuable, costly-to-imitate firm resources and capabilities provide the main sources of sustainable competitive advantage to firms (Wernerfelt, 1984; Porter, 1985; Barney, 1991; Barney et al., 2011). Gig economy companies rely on the labor of independent contractors, resulting in lower labor-related costs and a higher strategic agility, compared with using regular employment contracts (Houseman, 2001; Weber and Tarba, 2014; Felipe et al., 2016; Schwellnus et al., 2019; Internal Revenue Service, 2023; Khalaf, 2023). WSRR may erode these competitive advantages by forcing gig economy companies to switch certain workers from being independent contractors to regular employee status. Next to one-off litigation and compliance costs, this switch may bring a persistent increase in labor costs for health insurance, paid holiday and sick leave, training and development, and payroll administration, which would not be required for independent contractors. A change from relying on independent contractors to having more formal employees may also diminish gig economy companies' ability to rapidly adjust their service capacity to market demand fluctuations, thereby further eroding their cash flows. Resource-based theory also identifies a firm's reputation as a crucial driver of sustained competitive advantage (Fombrun and Shanley, 1990; Deephouse, 2000; Boyd et al., 2010). WSRR may heighten stakeholders' awareness of the problems associated with the gig economy business model and the practice of employee misclassification, resulting in a reduced reputation of the affected companies and an associated drop in cash flows, for example because consumers refuse to use their services and employees

are reluctant to work for them (Pigors and Rockenbach, 2016; Deng and Xu, 2017). Overall, these arguments lead to a prediction of a reduction in gig economy companies' cash flows following the introduction of WSRR, and therefore a negative stock price reaction.[10, 11]

H_1: *WSRR announcements result in negative stock price reactions for gig economy companies.*

Besides gig economy companies, WSRR may also affect gig economy facilitators. As the suppliers in the gig economy ecosystem, gig economy facilitators mostly consist of human resources and payment processing companies. A forced switch to regular employment contracts may reduce gig economy companies' demand of outsourced independent contractors provided by human resources companies, and the number of gig economy-related payments processed by payment companies. We therefore also predict net cash flow losses and negative stock price reactions for gig economy facilitators. Supporting this prediction, previous studies have recorded supply chain propagation effects of corporate news on the shareholder value of the focal firms' downstream and upstream supply chain partners (Barrot and Sauvagnat, 2016; Jacobs and Singhal, 2017; Jacobs et al., 2022).

Hypothesis H_1 has two straightforward corollaries for boundary mechanisms affecting the relation between WSRR and shareholder value. First, if shareholders are concerned about WSRR's effects on firms' costs and strategic agility, we should observe less negative stock price reactions to WSRR announcements for firms with a higher ex ante (pre-WSRR) financial

[10] The change from relying on independent contractors to having more formal employees may also erode the network effects of gig economy companies, where the participation of customers and independent contractors is mutually reinforcing (Katz and Shapiro, 1985; Schwellnus et al., 2019). A loss of network effects, which implies a loss of competitive advantages and barriers to entry, can also lead to cash flow reduction (Porter, 2008; Sun and Tse, 2009). As we do not have firm-level data on user activity and independent contractor employment, we do not test this mechanism in our study.

[11] In addition to resource-based theory, Coase's theory of firm boundaries (Coase, 1937) also implies a reduction in gig economy companies' cash flows following the introduction of WSRR. According to Coase's theory, firm exists to minimize the costs associated with coordinating economic activities. A firm makes employment decisions and transacts with laborers in the most cost-effective way. Gig economy companies hire independent contractors because it is more efficient than employing regular employees and aligns with their interests. However, WSRR force gig economy companies to adopt a less cost-effective employment arrangement and result in a reduction in future cash flows.

flexibility, defined as a firm's ability to respond in a timely and value-maximizing manner to unexpected changes in its future cash flows or investment opportunities (Denis, 2011). Firms with a higher financial flexibility should be better able to handle negative income shocks and adapt to adverse external changes (Ang and Smedema, 2011; Rapp, 2014; Fahlenbrach et al., 2021; Barry et al., 2022), including those provoked by regulation changes, for example by attracting additional funding or making investment in innovation (Ferrando et al, 2017; Bena et al., 2022). Gig economy companies with a higher financial flexibility should have more internal financial resources or easier access to external capital markets, enabling them to pay additional labor costs arising from WSRR and to invest in future growth options that reduce their reliance on precarious labor. We therefore obtain the following prediction:

H_2: *Stock price reactions to WSRR announcements are positively affected by the gig economy company's ex ante financial flexibility.*

The second boundary mechanism relates to a firm's ex ante labor conditions. The rationale is as follows. Previous studies argue that a strong reputation acts as a strategic resource leading to sustained competitive advantage (Fombrun and Shanley, 1990; Deephouse, 2000; Boyd et al., 2010). WSRR may heighten stakeholders' awareness of the problems associated with the gig economy business model and the ethical issue of employee misclassification, resulting in a reduced reputation of the affected companies and an associated reduction in reputation-associated benefits. These reputational benefits may include higher consumer loyalty and willingness to pay for the firms' goods and services (Goldberg and Hartwig, 1990; Cretu and Brodie, 2007), higher employee satisfaction (Stuebs and Sun, 2010), a lower cost of capital (Suh and Houston, 2010; Cao et al, 2015), and ultimately a higher shareholder value (Knittel and Stango, 2014; Raithel and Schwaiger, 2015). We therefore predict the reputational risk and the associated negative cash flow effects of WSRR should be lower for firms with more favorable ex ante labor conditions. To the extent that stakeholders are aware of these conditions,

gig economy companies with favorable labor conditions should be better able to withstand the adverse reputational effects of WSRR, as better labor conditions should proxy for a lower risk that the firm is deliberately misclassifying workers as independent contractors. We thus obtain the following prediction:

H_3: *Stock price reactions to WSRR announcements are positively affected by the gig economy company's ex ante labor conditions.*

5. Sample, methodology, and variables

5.1. Identifying gig economy companies and facilitators

The literature provides no standard method for identifying gig economy companies. We use the following approaches to identify a global set of gig economy companies and their facilitators. We first construct ten sets of keywords, including 36 exhaustive and non-duplicate keyword combinations covering the terms gig economy, independent contractors, and employee misclassification identified from an exploratory literature search on the gig economy. Appendix Table B1 presents the keywords. We use all keyword combinations as search filters in Factiva, focusing on an initial time horizon from January 1, 2009 to December 31, 2022, to find the most relevant companies.[12] We start the search from 2009 because Uber, which is widely believed to initiate the business model followed by other gig economy companies, was founded in that year (Manjoo, 2015).

After dropping duplicate company names and non-company observations, we obtain a sample of 486 companies. We exclude companies with fewer than 15 keyword-related hits to minimize the risk of 'false positives', i.e., the inclusion of non-gig economy companies that by coincidence appear in business articles containing gig-economy-related terms. We also purge

[12] Factiva provides the 100 companies with the most mentions under each search filter. The Factiva support team confirmed that this number cannot be expanded. Therefore, we separately try all 36 keyword combinations and merge the company lists they generate, removing duplicate firms.

our sample of non-listed companies. The final sample contains 173 'gig economy ecosystem' companies, among which 131 are US-domiciled, 12 are EU-domiciled, and 30 are domiciled in other countries.

Next, we classify these companies into two groups: (1) gig economy companies and (2) gig economy facilitators. A company is classified as a gig economy company if the Factiva news sources, the company's official websites, or the company's 10-K fillings mention it directly hires or requires independent contractors as a part of its labor force for its core business activity.[13, 14, 15] Typical gig economy companies are ride-hailing and food delivery platform companies such as Uber, Lyft, and Deliveroo. The remaining companies do not hire or require independent contractors for their own business activities. We label these gig economy facilitators.[16] Typical examples are human resources and payment processing services companies such as Adecco Group AG (SWX: ADEN, henceforth Adecco) and PayPal Holdings, Inc. (NASDAQ: PYPL, henceforth PayPal). We obtain 113 gig economy companies and 60 gig economy facilitators.

To supplement our sample, we draw from historic holdings of the SoFi Gig Economy ETF (NYSE: GIGE).[17] This is an actively-managed ETF claiming to pursue long-term capital

[13] For most gig economy companies in our sample, the Factiva news sources indicate that they hire or require independent contractors for their core business activity, implying that their employment arrangement will be influenced by the WSRR. For instance, concerning Event A12, the news article of New York Times (Satariano and Peltier, 2021) explicitly states that "the European Commission took a major step toward requiring companies like Uber to consider their drivers and couriers as employees entitled to a minimum wage and legal protections."
[14] We identify the remaining companies by checking the companies' 10-K fillings from 2009 to 2022, using the same time horizon we adopt for the Factiva articles, and the companies' official websites in 2023, as of the time of our research. Given that most companies in our sample are US-domiciled (131 of 173), the 10-K filings cover a similar scope as the annual reports of the remaining companies but provide more detailed information on risk factors, in which they should demonstrate the worker-status reclassification issue.
[15] For example, the risk factor section of Uber's 10-K filling (Uber Technologies, Inc., 2020) explicitly points out that "The classification of drivers is currently being challenged in courts, by legislators and by government agencies in the United States and abroad. We are involved in numerous legal proceedings globally…that claim that drivers should be treated as our employees (or as workers or quasi-employees where those statuses exist), rather than as independent contractors. "
[16] Gig economy facilitators emphasis that they provide services to independent contractors. Their focus is not employment relationship. For example, PayPal's website (McDonnell, 2018) clarifies that "More than three quarters of businesses using freelancing platforms pay directly through the freelancer platform and the majority use PayPal."
[17] SoFi Gig Economy ETF (NYSE: GIGE) was renamed SoFi Be Your Own Boss ETF (NYSE: BYOB) after August 9, 2022. There were no changes to the fund's objectives or strategy.

appreciation by providing exposure to companies in the gig economy ecosystem (SoFi ETF Summary Prospectus, 2024). We track its holdings from its inception in May 2018 until December 31, 2022. We identify 89 unique companies in total, including 67 US-domiciled companies and 8 EU-domiciled companies. We also classify these constituent companies into gig economy companies and gig economy facilitators, following the above criteria.

Appendix Table B2 presents information on the top ten gig economy companies and facilitators with the most Factiva mentions. Uber is the gig economy company with most mentions in Factiva, and Adecco is the most mentioned gig economy facilitator. The Gig Economy ETF has invested in seven of the top ten mentioned gig economy companies, but only in one of the top ten gig economy facilitators. Most companies (62 out of 89) covered by the ETF are already covered by our initial sample obtained from Factiva, corroborating that our keyword searches were accurate in identifying gig economy companies.

5.2. Event study methodology

We use a standard policy event study methodology (Grewal et al., 2019; Jacobs et al., 2022; Pan et al., 2022) to examine stock price reactions to WSRR announcements. In an event study, stock price reactions are measured by estimating abnormal stock returns over a short time period around the first announcement of the relevant news, while controlling for market-wide factors that may influence stock prices (Brown and Warner, 1980; 1985). Previous event studies tend to focus on a single-country setting. Limited work has been conducted in an international context due to the complexities inherent in implementing cross-country studies (Eden et al., 2022; El Ghoul et al., 2023). Our paper therefore also contributes to the limited body of cross-country event studies in the literature.

We calculate cumulative abnormal stock returns (*CAR*s) around the 16 WSRR events.[18] The *CAR* is the sum of the abnormal returns around day 0, multiplied by 100. We measure *CAR*s for three-day (–1, +1), five-day (–2, +2), and eleven-day (–5, +5) intervals, consistent with previous studies (Armstrong et al., 2010; Krüger, 2015; Grewal et al., 2019). To estimate the normal stock return, we adopt the widely-used market model (Flammer, 2013; Jacobs and Singhal, 2020; Jacobs et al., 2022; Shan and Tang, 2023), with an estimation period of 200 trading days ending 30 days before each event date.[19]

We follow Jacobs and Singhal (2017) and use the dominant country-level stock market index for each firm as a proxy for the market return. For example, we use S&P 500 Index (NYSE: SPX), FTSE 100 (LSE: FTSE), and CAC 40 Index (XPAR: FCHI) for companies domiciled in the US, UK, and France. We collect stock price data and market indices from Compustat (North America and Global) accessed through WRDS. We complement a few missing stock price and market index values with corresponding data from Bloomberg, to maximize sample size.

In addition to the *t-test*, we test the significance of *CAR* through the *Adjusted Patell test*, *Standardized Cross-Sectional test*, and *Generalized Sign test*. In a policy event study, all sample firms are exposed to the same shock on the same event date. The *Adjusted Patell test* accounts for cross-sectional correlation caused by event-date clustering (Kolari and Pynnönen, 2010). The *Standardized Cross-Sectional test* accounts for event-induced volatility and serial correlation problems (Boehmer et al., 1991). The *Generalized Sign test*, a nonparametric test, has been argued to have a strong statistical power in a multi-country event study setting like ours (Campbell et al., 2010).

5.3. Cross-sectional regressions and explanatory variables

[18] We also examine the stock price reactions to events decreasing the likelihood of WSRR adoption, for which we do not find a significant result. See Appendix Table B6 for more information.

[19] We report the event study results using the market adjusted model in Appendix Table B4. Our findings of negative stock price reactions of gig economy companies and facilitators to WSRR events remain robust.

To examine our hypotheses regarding boundary mechanisms of the WSSR – shareholder value relation, we run Ordinary Least Squares (OLS) regression analyses of stock price reactions to WSRR events. The dependent variable in the regressions is the firm-specific five-day cumulative abnormal return, *CAR(*–2, +2), for each event, consistent with Grewal et al. (2019). Compared to shorter windows, this five-day event window allows us to deal with the effects of delayed reactions by investors and any pre-event information leakage, and avoids the excessive noise captured in a longer window. It therefore presents a suitable middle ground between the different windows we consider in the univariate analysis.[20]

Also consistent with Grewal et al. (2019), we capture the independent variables in the baseline cross-sectional analysis in fiscal year 2018, representing the first year of WSRR events in our event list. By capturing all variables at the onset of WSRR announcements, we make sure our inferences are not influenced by the impact of these announcements on gig economy company's characteristics. All regressions include fixed effects (FE) for year, industry, and country, with standard errors clustered by country. We estimate the following model:

$$CAR_{i,t} = \alpha_{i,t} + \beta_1 \times FF_i + \beta_2 \times LC_i + \beta_3 \times Controls_i + Year\ FE + Industry\ FE + Country\ FE + \varepsilon_{i,t} \quad (1)$$

In *Equation (1)*, *CAR* is the five-day (–2, +2) cumulative abnormal return associated with each event *t* and firm *i*, expressed as a percentage. *FF* is the set of proxy variables capturing the financial flexibility for firm *i*. *LC* is the set of proxy variables measuring labor conditions for firm *i*. *Controls* indicate our control variables.

To test H_2, we adopt standard measures that investors may consider to evaluate a given gig economy company's financial flexibility: *Return on Assets* (*ROA*), *Current Assets*, *Credit Rating*, *Interest Coverage*, *Dividend Payout*, *Costs of Goods Sold Expenses* (*COGS Expenses*),

[20] Our cross-sectional findings on stock price reactions are robust to the use of the cumulative abnormal returns over eleven-day (–5, +5) event windows.

and *Labor Expenses*. *ROA* reflects a firm's profitability, and *Current Assets* captures a firm's liquidity (Gamba and Triantis, 2008; Boso et al., 2017). Both of them are used to measure a firm's financial slack, capturing the firm's capability and flexibility to respond to unexpected shocks, avoid adverse consequences, and support social sustainability initiatives through internal capital (Boso et al., 2017; John et al., 2017; Kuusela et al., 2017).[21, 22] A firm's financial flexibility is also affected by its ability to access external capital (Ang and Smedema, 2011; Dasgupta et al., 2024). We use *Credit Rating* and *Interest Coverage* to measure a firm's creditworthiness and solvency as a borrower, and *Dividend Payout* to measure a firm's anticipated financing constraints, as firms change their payout policy in anticipation of significant litigation risk (Ang and Smedema, 2011; Fahlenbrach et al., 2021; Lee et al., 2022; Arena and Julio, 2023; Dasgupta et al., 2024).[23] For all of these five variables, higher values capture a higher financial flexibility. Following H_2, we expect stock price reactions to be more favorable for companies with higher *ROA*, *Current Assets*, *Credit Rating*, *Interest Coverage*, and *Dividend Payout*.

Following Fahlenbrach et al. (2021), since WSRR is likely to impose costs on gig economy companies, we include cost-related variables into our set of proxies for financial flexibility. *COGS Expenses* have mixed implications for financial flexibility, and its predicted sign is therefore unclear. On the one hand, similar to a high overall cost base, a high level of COGS expenses suggests more of the firm's financial resources are tied to the production of goods or services, resulting in reduced financial flexibility available for other purposes. On the other hand, COGS expenses capture variable costs in particular, with firms with a higher fraction of

[21] Boso et al. (2017) use return on sales (ROS) and return on equity (ROE) to proxy for a firm's financial resources slack. To make the denominators of the variables consistent, we use return on assets (ROA) in this paper.

[22] Previous studies of financial flexibility commonly use cash holdings to measure liquidity (Denis, 2011; Fahlenbrach et al., 2021; Lee et al., 2022). We use a firm's share of current assets instead of cash holdings. Gig economy companies are considered 'asset light', owning relatively few capital assets compared with their market values (Jelani, 2016). By using the share of current assets, we take this characteristic of gig economy companies into account.

[23] Debt is an important source of financial inflexibility (Ang and Smedema, 2011; Fahlenbrach et al., 2021; Dasgupta et al., 2024). We consistently control for *Debt/Equity* in all regressions.

variable costs being viewed as more flexible in changing expenditures when negative shocks hit (Barry et al., 2022). Furthermore, a high level of ex ante *Labor Expenses* may make firms less able to cope with negative shocks, since it is difficult to reduce labor expenses in the short term (Favilukis et al., 2019; Geng et al., 2022).

To test H_3, we use the following proxy variables capturing a firm's pre-regulatory labor conditions. *Employee-Related Controversies* indicates the number of controversies published in the media linked to the company's relations with employees or related to wage disputes, and therefore acts as an inverse proxy of the firms' labor conditions. *Workforce Score* measures a company's effectiveness towards achieving a high workforce's satisfaction, healthy and safe workplaces, and diversity and equal opportunities for its general workforce. *Employee Satisfaction Score* indicates the overall percentage of satisfied employees. The latter two variables reflect a subjective evaluation of the labor conditions formulated by companies' workforce. We also use *Trade Union Representation*, capturing the percentage of employees represented by independent trade union organizations, to indicate the collective bargaining power of companies' workforce. Following H_3, we expect the companies providing better labor conditions (fewer *Employee-Related Controversies*, a higher *Workforce Score*, a higher *Employee Satisfaction Score*, and a higher *Trade Union Representation*) to be more sheltered from the adverse reputational effects of WSRR, resulting in less negative stock price reactions.

There are four labor-related variables with missing values in our sample. Companies are not required to disclose information on *Labor Expenses* (Huang et al, 2015), and the three labor condition proxies, including *Employee-Related Controversies*, *Employee Satisfaction Score*, and *Trade Union Representation*, have missing values, a limitation that is common in studies on environmental, social and governance (ESG) issues (Huang et al., 2022; Lindsey et al., 2023). Consistent with Huang et al. (2015) and Call et al. (2017), we code the missing values as zero and include four binary indicators for these four variables to capture companies for

which the information is missing. This approach allows us to retain as many observations as possible, while controlling for the relation between the incidence of missing information and dependent/independent variables (Aggarwal and Samwick, 2006). [24]

We furthermore include *Labor Intensity*, which measures a company's reliance on regular employees relative to the company's assets, to capture the firm's ex ante use of human labor.[25] We consider *Labor Intensity* as a proxy variable for both hypotheses H_2 and H_3, and our predictions on this variable are mixed. On the one hand, given that WSRR introduce novel labor regulations, we expect the adverse cash flow effects of WSRR to be amplified for firms with a higher reliance on human labor, resulting in a prediction of a negative effect of *Labor Intensity* on stock price reactions. *Labor Intensity* may effectively act as an inverse proxy of financial flexibility and complement the results of *Labor Expenses*, as firms with a higher reliance on human labor have more labor expenses to pay. On the other hand, firms with a low *Labor Intensity* may be more exposed to the WSRR, since they have comparatively fewer formal employees and therefore potentially more wrongly-classified independent contractors, implying unfavorable labor conditions. The latter argument would yield a prediction of a positive impact of *Labor Intensity*.

In addition, we consistently include three control variables in all regressions. First, we control for *Firm Size*. Larger firms have a higher societal visibility (Jiang and Bansal, 2003), which may increase the reputational costs associated with WSRR. However, larger firms may also be more capable to resist external stakeholder pressure by investing in lobbying and litigation (Meznar and Nigh, 1995). Thus, the predicted impact of *Firm Size* is again unclear a

[24] We separately report the regression results for *Labor Expenses*, *Employee-Related Controversies*, and *Workforce Score* in Table C7 of the Appendix only using observations with no missing values. We do not consider *Employee Satisfaction Score* and *Trade Union Representation* using this approach, because *Employee Satisfaction Score* has more missing values than the other labor condition proxies and the effect of *Trade Union Representation* is not significant in our baseline analysis. *Workforce Score* has no missing values and can supplement our findings on labor conditions. Our results remain robust. Section 6.4 provides more information.

[25] Companies are not required to disclose information on the employment of independent contractors. So, we only use the density of regular employees.

priori. Our second control variable is *Market/Book*, which may capture a range of constructs including information asymmetry, growth opportunities, and risk (Sharma et al., 2013). Our last control variable is the *Debt/Equity*, which captures firms' pre-regulatory capital structure and bankruptcy risk (Billings et al., 2022; Pan et al., 2022). All three variables are commonly used as control variables in event study analyses (Jacobs et al, 2022; Pan et al., 2022; Shan and Tang, 2023).

Data on the independent variables are all obtained from the *Refinitiv Eikon* Database. All continuous variables are winsorized at 1% and 99%. For non-US companies, the unscaled values are expressed in US dollars, using annual averages of foreign exchange rates. Table 2 provides detailed definitions of the variables and their sources.

<< Please insert Table 2 here >>

Table 3 presents descriptive statistics for the variables in our cross-sectional analysis of stock price reactions of gig economy companies and Table B3 in the Appendix reports pairwise Pearson correlation coefficients among them. The largest (in absolute value) correlation between independent variables occurs between *Credit Rating* and *Workforce Score* (correlation of 0.53, *p*-value of 0.00), suggesting multicollinearity is not a problem in our analysis.

<< Please insert Table 3 here >>

6. The shareholder value impact of WSRR

This section presents the empirical results on the shareholder value impact of WSRR. We first discuss the univariate and cross-sectional analyses of stock price reactions to the WSRR events. We then present a range of additional and robustness tests.

6.1. Univariate analysis of stock price reactions

Table 4 reports the results of the univariate analysis of stock price reactions to WSRR events. Panel A reports the average *CAR* for each event regarding all companies belonging to

the gig economy ecosystem, including gig economy companies and gig economy facilitators. Panel B and Panel C report the average *CAR* for gig economy companies and facilitators separately.

<< Please insert Table 4 here >>

We find that, on average, both the companies belonging to the gig economy ecosystem and the subset of gig economy companies experience significant negative abnormal returns to the WSRR events, consistent with H_1. For the event windows (–1, +1), (–2, +2), and (–5, +5), the companies belonging to the gig economy ecosystem experience an average negative stock price reaction of –0.38%, –0.66%, and –0.87% respectively, and such metrics are –0.39%, –0.65%, and –0.93% for gig economy companies. Using Krüger's (2015) approach, we find the median market values of gig economy companies shrink by approximately $20.16 million within five days around each WSRR event. The negative stock price reactions from the event window (–1, +1) are not significantly different from zero under the *Adjusted Patell test* and the *Generalized sign test*. However, the negative stock price reactions are robustly significant for the longer event windows (–2, +2) and (–5, +5). These findings suggest that the global stock markets need time to react to the WSRR initiated by specific countries.

We also find a significant negative stock price reaction for gig economy facilitators in the five-day event window (–2, +2) with an average *CAR* of –0.68%, a robust finding across all the four significance tests we adopt. However, this significant negative stock price reaction cannot be observed in a shorter (three-day) or a longer (eleven-day) event window. Compared with the stock price reactions for gig economy companies, it appears that investors need more time to incorporate the incremental information of WSRR into the stock prices of gig economy facilitators, and the effects of their reactions do not persist for long.

We replicate the tests of Table 4 in Table B4 in the Appendix, in which we adopt the market adjusted model instead of the market model. The market adjusted model does not require the

estimation of stock-specific parameters and reduces the model risk (MacKinlay, 1997). Our findings of negative stock price reactions for both gig economy companies and facilitators to the WSRR events remain robust. In Table B5 in the Appendix, we again replicate the tests of Table 4 separately for the US and EU WSRR events. We find the negative stock price reactions to be more robust for the US events than for the EU events. We have three potential explanations for it. First, there are only three EU WSRR events in our sample, implying a smaller number of observations and lower statistical power, all else equal. Second, all the EU events occur in the later stage of our sample period, and by then shareholders may already have an expectation of future WSRR, weakening the information content of their announcement. Third, the majority of the companies in our sample are from the US (approximately 76%), and may be more affected by the US regulations.

6.2. Cross-sectional differences in stock price reactions

Table 5 presents the empirical results of cross-sectional analyses of stock price reactions for gig economy companies. In Column (1) we report the regression results for the financial flexibility hypothesis, in Column (2) we test the hypothesis on labor conditions, in Column (3) we show the combined results, and in Column (4) we incorporate the binary controls for missing values.

<< Please insert Table 5 here >>

Regarding Column (1), we find positive and statistically significant impacts of *ROA*, *Current Assets*, *Credit Rating*, and *Dividend Payout* on stock price reactions. Economically, a one-standard-deviation increase in these four variables implies increases by 0.30%, 0.24%, 0.27%, and 0.39% in the *CAR*, respectively. The impact of *Interest Coverage* is insignificant. We find a negative impact of *COGS Expenses* (coefficient of –0.673, $p < 0.01$), supporting our first argument on this variable that shareholders favor companies with fewer financial resources

tied to the production of goods or services, and a low overall cost base. These companies may have more financial resources available to deal with the cost effect of WSRR.

We also find stock price reactions are more favorable for gig economy companies with lower *Labor Expenses* (coefficients of –1.890, $p < 0.01$) and *Labor Intensity* (coefficients of –0.233, $p < 0.01$), implying stock price reactions are more unfavorable for companies with a high reliance on human labor. These results are consistent with H_2.

In Column (2), the regression results pertain to labor conditions. We find a negative impact of *Employee-Related Controversies* and positive impacts of *Workforce Score* and *Employee Satisfaction Score* on stock price reactions, and the coefficients of these variables are statistically significant. A one-standard-deviation increase in these variables is associated with a decrease of 0.19% and increases of 0.14% and 0.19% in *CAR*, respectively. The impact of *Trade Union Representation* is insignificant. We also find a negative impact of *Labor Intensity* (coefficient of –0.368, $p < 0.01$). These results support H_3.

Column (3) combines all the test variables we use, and Column (4) incorporates the binary controls for the missing values of the variables *Labor Expenses*, *Employee-Related Controversies*, *Employee Satisfaction Score*, and *Trade Union Representation*. Our findings remain consistent.

Next, we examine whether the negative stock price reactions to WSRR events also relate to the boundary mechanisms of financial flexibility and labor conditions in gig economy facilitators too. Since these companies do not hire independent contractors for their own businesses or have direct obligations to pay labor expenses for them, we drop *Labor Intensity* and *Labor Expenses* from the regressions. In Table 6, Column (4) reports that stock price reactions are more favorable for gig economy facilitators with a higher *ROA* (coefficient of 0.063, $p < 0.05$), higher *Credit Rating* (coefficient of 0.081, $p < 0.05$), lower *COGS Expenses* (coefficients of –0.768, $p < 0.01$), and fewer *Employee-Related Controversies* (coefficient of –

0.533, $p < 0.05$). Our findings are qualitatively similar in the other columns. These results are in line with our prediction that the cost and reputational effects of WSRR can propagate within the gig economy ecosystem.

<< Please insert Table 6 here >>

6.3. Long-term stock price reactions

We then examine the long-term stock price reactions to WSRR events. Some of our events are too close in time, and they likely affect one another and contaminate our estimations. To solve this problem, we focus on events that are not followed by others over a period of at least four months (120 days), and examine the uncontaminated one-month (+2, +30), two-month (+2, +60), and three-month post-event windows (+2, +90). We calculate the Buy-and-Hold Abnormal Return (*BHAR*) instead of *CAR* since the latter can be biased and lead to incorrect inferences in the long run (Barber and Lyon, 1997). In addition to the *t-test*, we use the *Skewness-adjusted transformed normal test* (Lyon et al., 1999), which is commonly used to cope with the skewness in the distribution of the *BHAR*. Panel A and Panel B of Table 7, we do not find any significant stock price reactions in the long run either for all companies belonging to the gig economy ecosystem or for gig economy companies. This result suggests that the shareholders' initial reactions to WSRR events are not reversed.

<< Please insert Table 7 here >>

6.4. Robustness tests of stock price reactions

To evaluate the reliability of our findings, we report a large battery of robustness tests.

Our analysis of stock price reactions has so far focused on the 16 events increasing the likelihood of the adoption of WSRR. But in our sample period we also have four events decreasing this likelihood, which represent temporary victories of gig economy companies against the WSRR. Panel A of Table B6 in the Appendix reports the stock price reactions to the four events decreasing this likelihood. None of the *CARs* are consistently statistically

significant. It seems that the shareholders take a neutral stance on the events decreasing the likelihood of the adoption of WSRR, and they do not believe these events can materially influence the future cash flows of gig economy companies and their facilitators over the long term. Panel B of Table B6 in the Appendix contains the stock price reactions to all 20 events in our event list. Even if the events decreasing the likelihood are included, the general stock price reactions to all events remain significant and negative for all companies belonging to the gig economy ecosystem and gig economy companies separately.

We also report a large battery of robustness tests for cross-sectional stock price reactions in Appendix C and D. First, we test the robustness of the cross-sectional findings on stock price reactions by using more extensive sets of fixed effects. Table C1 and Table C2 report the cross-sectional analysis for gig economy companies and facilitators with the interactive *Year*×*Country* fixed effects and *Industry* fixed effects. The standard errors are clustered at the country level. The regression results remain significant and consistent with our hypotheses.

Second, as the dependent variable, in Table C3 and Table C4 for each company we use the total *CAR* across all events rather than the separate event-specific *CAR*. Although this approach severely reduces the number of observations available, our main findings remain qualitatively the same.

Third, to supplement our main analysis in which all independent variables are based on 2018 (the first year of WSRR in our event list), we explore the cross-sectional differences in stock price reactions using a rolling window approach, in which the independent variables are captured in the fiscal years just preceding the years of the corresponding WSRR events. For example, when we test the cross-sectional differences of stock price reactions for company A to an event in 2021, we use independent variables measured in 2018 in the main analysis but those measured in 2020 under the rolling window approach. This approach may suffer from endogeneity problems since gig economy companies may take actions to deal with the WSRR

in the following years. Therefore, we do not use the rolling window approach in the baseline analysis. In Table C5, we still find evidence that stock price reactions are more favorable for gig economy companies with higher financial flexibility and more favorable labor conditions.

Following previous literature (Armstrong et al., 2010; Grewal et al., 2019; Cousins et al., 2020), we conduct a placebo test to verify that our cross-sectional results do not occur on non-event dates. In each run of the placebo test, we randomly select 16 dates from 2018 to 2022 for each company, calculate these events' *CAR* for each firm, and use it to carry out cross-sectional analyses of stock price reactions following the same approach as in the baseline regressions. We repeat the random selection of dates, the calculation of *CAR*, and the cross-sectional regressions 500 times. Table C6 reports the results of the placebo test. We find the effects of all variables are statistically insignificant in the placebo test, suggesting that the observed cross-sectional differences in stock price reactions presented in our main analysis are event-specific and not spurious.

In our baseline cross-sectional regressions, we control for four missing-value indicators which equal one when a missing value of *Labor Expenses*, *Employee-Related Controversies*, *Employee Satisfaction Score*, and *Trade Union Representation* is replaced by zero. We are able to retain a large sample size by doing so. In Table C7, we report the separate regression results for *Labor Expenses* and *Employee-Related Controversies*, only using observations with no missing values. We do not consider the regression results for *Employee Satisfaction Score* and *Trade Union Representation* using this approach, because *Employee Satisfaction Score* has more missing values than the other labor condition proxies in our sample and the effect of *Trade Union Representation* is not significant in our baseline analysis.[26] We also report the

[26] Our sample contains 159 observations with no missing values of *Employee Satisfaction Score* for gig economy companies. Focusing on the observations with no missing values of *Employee Satisfaction Score* will result in a loss of nearly 85% of observations compared to our baseline regression.

results for *Workforce Score*, which has no missing values, to supplement our findings on labor conditions. The regression results remain consistent with our predictions.[27]

Finally, in Appendix D we supplement our main sample of gig economic companies based on Factiva news sources with a sample collected from the historical holdings of the Gig Economy ETF. Table D1 reports the stock price reactions of the extended sample to WSRR events and all events, including those increasing or decreasing the likelihood of WSRR adoption. The negative stock price reactions for all companies belonging to the gig economy ecosystem, gig economy companies, and gig economy facilitators are statistically significant and robust across five-day (–2, +2) and eleven-day (–5, +5) event windows. Tables D2 and D3 report the cross-sectional analyses of stock price reactions for gig economy companies and their facilitators using the extended sample. The regression results remain consistent with our hypotheses.

7. Real firm outcomes of WSRR

After examining the financial stock market impact of WSRR in the short term, this section discusses its effects on gig economy companies' corporate finance outcomes over the longer term. We first formulate ex ante predictions of such effects, then explain the methodology we adopt, show our findings, and finally test pre-treatment trends.

7.1. Predictions

If the WSRR events materially influence the cash flows of gig economy companies as shareholders predict, we should find evidence of post-WSRR real firm outcomes.

First, the WSRR should affect gig economy companies' financial outcomes, as we find evidence that shareholders are concerned about the cost effect of the regulations. We predict

[27] In Table C7, we find a significant impact of *Labor Expenses* on the stock price reactions of gig economy companies to the WSRR events, and an insignificant impact for gig economy facilitators. This justifies our decision to drop *Labor Expenses* from the regressions for gig economy facilitators, as they do not hire independent contractors for their own businesses or have direct obligations to pay labor expenses.

unfavorable financial outcomes for gig economy companies after the regulations. Specifically, we predict decreases in *ROA*, *Current Assets*, and *Credit Rating*, and an increase in *Debt/Equity*, since gig economy companies may raise additional debt to deal with the cost consequences of WSRR. We also predict increases in *Labor Expenses* and *Number of Employees*, as companies may pay higher labor expenses and hire more regular employees to comply with the regulations. We are also interested in whether gig economy companies invest more in future growth options or innovations to reduce their reliance on precarious labor, thereby mitigating the cost effect of WSRR on them over the long term. Therefore, we study *Research and Development Expenses* (*R&D Expenses*) and *Capital Expenditures* (*CAPEX*). We also take *COGS Expenses* into account.

According to our findings so far, we also expect an improvement in labor conditions after WSRR, as gig economy companies may try to mitigate potential concerns about the reputational effects of a strong stakeholder scrutiny of their employee misclassification risk. We adopt the same proxy variables capturing labor conditions we use in the cross-sectional event study, predicting a decline in *Employee-Related Controversies*, and increases in *Workforce Score*, *Employee Satisfaction Score*, and *Trade Union Representation*.

7.2. PSM and DID

We use propensity-score-matching (*PSM*) followed by difference-in-differences (*DID*) estimations to examine the real firm outcomes of WSRR. We first perform a *PSM* analysis to construct a comparable control group for gig economy companies. Then, we run the *DID* regressions using the matched sample. Combining *PSM* and *DID*, we can control for unobservable and observable differences in various firm-level characteristics and estimate the treatment effects.

We first adopt the *PSM* analysis to address the concern that gig and non-gig economy companies are systematically different before the WSRR, and therefore exhibit different trends

in their business decisions/outcomes over time. We conduct the *PSM* procedure based on a logit regression model and a one-to-one nearest neighbor matching (caliper ≤ 0.01) with replacement, controlling for a range of firm characteristics in 2018 which represents the first year of WSRR events in our event list. In addition to the control variables we use in the cross-sectional analysis of stock price reactions (Section 6.2), including *Firm size*, *Market/Book*, and *Debt/Equity*, we also take *ROA*, *Credit Rating*, and *Labor Intensity* into account as matching variables. Data are obtained from the *Refinitiv Eikon* Database. We identify control firms from the same country and the same industry (two-digit NAICS) with similar size, growth opportunities, financial leverage, profitability, creditworthiness, and labor characteristics. There are 89 treated firms (gig economy companies) with available data, and our *PSM* analysis identifies 65 control firms for 72 treated firms. [28] Table B7 in the Appendix reports the results of the matching exercise. Reassuringly, the *t*-statistics for tests estimating differences in the means of these characteristics are insignificant after matching.

We then estimate the following *DID* model (*Equation 2*), where *i* and *t* denote firm and year, respectively. Our dependent variable $RI_{i,t}$ is one of the several measures of real outcomes of WSRR.

$$RI_{i,t} = \alpha_{i,t} + \beta_1 \times Treated_i \times Post_t + \beta_2 \times Controls_{i,t} + Year \times Country\ FE + Firm\ FE + \varepsilon_{i,t} \quad (2)$$

As for independent variables, the key variable of interest is $Treated_i \times Post_t$. The coefficient β_1 captures the net impact of WSRR on the dependent variables from the pre-regulation to the post-regulation periods for treated firms relative to their matched controls. $Treated_i \times Post_t$ equals one if the firm is identified as a gig economy company ($Treated_i = 1$) and affected by

[28] Compared with the event study, the number of gig economy companies decreases in the *DID* estimation because of limited available data. Our event study requires cross-sectional data for the fiscal year of 2018 only, but the *DID* estimation needs panel data from 2016 to 2020. Many gig economy companies were not listed in 2016, and therefore we cannot retrieve their data.

the WSRR ($Post_t$ = 1, in other words, the corresponding fiscal year is 2018 or after). We also control for *Firm size*, *Market/Book*, and *Debt/Equity* as we do in the cross-sectional event study.[29] To mitigate omitted variable biases (e.g. the presence of omitted variables that are correlated with the adoption of the WSRR), we use higher dimensional fixed effects, including *Year*×*Country* interactive fixed effects and *Firm* fixed effects. All standard errors are clustered at the firm level.

Again, Table 2 provides the definitions and sources of all the variables. There are no missing values for all the variables involved.

7.3. Empirical results

Table 8 tabulates the results from estimating our *DID* model. For the financial outcomes, although the WSRR do not have a significant impact on gig economy companies' profitability and liquidity (insignificant coefficients in *ROA* and *Current Assets* regressions), the regulations increase the companies' financial leverage, proxied by *Debt/Equity* (coefficient of 0.439, $p < 0.05$) and decrease their creditworthiness to pay back debt, proxied by *Credit Rating* (coefficient of –0.738, $p < 0.1$). This suggests gig economy companies raise additional debt to deal with WSRR, and rating agencies are not as optimistic about their future as before. We also find significant increases in *Labor Expenses* (coefficient of 0.009, $p < 0.05$) and *Number of employees* (coefficient of 0.204, $p < 0.01$), consistent with our prediction that gig economy companies pay higher labor-related expenses and hire more regular employees after the WSRR. We also find an increase in *COGS Expenses* (coefficient of 0.052, $p < 0.1$). We do not observe significant changes in *R&D Expenses* or *CAPEX*.

For labor condition outcomes, we find a decline in *Employee-Related Controversies* (coefficient of –3.842, $p < 0.05$) and a weak upward trend of *Employee Satisfaction Score*

[29] *Debt/Equity* is also one of the dependent variables for *DID* estimation, and we remove it from the set of controls when we use it as the dependent variable.

(coefficient of 4.424, $p < 0.1$) for gig economy companies after the WSRR, implying that they take actions to mitigate potential reputational concerns about the employee misclassification risk.

<< Please insert Table 8 here >>

The validity of the *DID* estimation assumes parallel pre-treatment trends. The WSRR should be exogenous. The corporate finance characteristics we observe should not be driven by existing inherent differences between treated and control firms before the regulations that could explain the post-event findings. That is, treated and control firms should follow parallel pre-treatment trends. To mitigate this concern, we examine the dynamic effects of WSRR and decompose the treatment effects of the regulation shock into four time periods captured by a series of year indicators. Specifically, we replace $Post_t$ in *Equation (2)* with the binary variables Pre_1, *Current*, $Post_1$, and $Post_2$, indicating the year 2017, 2018, 2019, and 2020, respectively. Given the fact that the WSRR initially started in 2018 and strengthened in 2019 and 2020, if the treated and control firms satisfy the pre-treatment parallel trends, the coefficient of $Treated_i \times Pre_1$ should be insignificant. We consider the same controls, fixed effects, and clustered standard errors as in the baseline *DID* specification.

Figure B1 in the Appendix presents the parallel trend tests for the variables for which we find a significant $Treated_i \times Post_t$ term in the *DID* estimations. The dynamic term $Post_t$, comprising Pre_1, *Current*, $Post_1$, and $Post_2$, can be found on the horizontal axis. The coefficients of the interaction terms between the year indicators (Pre_1, *Current*, $Post_1$, and $Post_2$) and the treatment effect ($Treated_i$) are reported on the vertical axis. The blue dashed lines show the confidence intervals of the estimated coefficients at the significance level of 10%.

We find *Credit Rating*, *Debt/Equity*, *Number of employees*, and *Employee-Related Controversies* pass the parallel trend tests with insignificant differences between the treated group and the control group before the regulations as well as significant differences after the

regulations. The treated firms have a lower *Labor Expenses* for the period Pre_1, but this trend is reversed by the regulations, and the treated firms have to pay significantly higher labor-related costs in the period $Post_2$. This result supports our expectation that gig economy companies save labor-related expenses and have a cost advantage before the WSRR, and therefore they exhibit lower *Labor Expenses* before the regulations. Then the WSRR prevents them from misclassifying independent contractors, resulting in a significant increase in their labor-related expenses. We find a similar pattern for *COGS Expenses*. Gig economy companies pay lower COGS expenses before the WSRR, then they lose this cost advantage after the WSRR. *Employee Satisfaction Score* cannot pass the parallel trend tests under our specification, and there is no significant difference between the treated and the control groups over the period. Overall, our results suggest that except for *Employee Satisfaction Score*, other variables which have a significant $Treated_i \times Post_t$ term in the *DID* estimations either can pass the parallel trend tests or experience pre-trends that arguably cannot explain our post-WSRR findings.

Table D4 in the Appendix presents the *DID* results using the extended sample, supplemented by the Gig Economy ETF constituent companies. We again find significant increases in *Debt/Equity*, *Labor Expenses*, *Number of employees*, and a decrease in *Employee-Related Controversies*.

8. Conclusion, limitations, and practical implications

Worker-status reclassification regulations (WSRR), including the well-known California Assembly Bill 5 and the European Commission Gig Economy directive, require independent contractors to be classified as employees unless their employment meets some specified conditions. We predict these regulations to result in anticipated net cash flow losses and hence negative stock price reactions for gig economy companies (H_1). We also examine the role of

financial flexibility (H_2) and labor conditions (H_3) as boundary mechanisms affecting the shareholder value effects of WSRR.

We identify 16 events increasing the likelihood of WSRR adoption and conduct a policy event study on a sample of 113 gig economy companies identified through a keyword search. Consistent with H_1, we document negative stock price reactions to the announcement of WSRR events. The median cumulative abnormal stock return over the WSRR events is −0.12%, translating into a median market value decline of $20.16 million within five days around each event for the average company in our sample. Our results extend to gig economy-facilitating companies, consistent with supply chain propagation of the cash flow effects of WSRR.

Consistent with H_2, stock price reactions are more favorable for gig economy companies with a higher financial flexibility, suggesting shareholders are sensitive to the WSRR's impact on future costs. Consistent with H_3, stock price reactions are more favorable for gig economy companies with better labor conditions, indicative of shareholders' awareness of the potential reputational effects associated with these regulations. Difference-in-differences estimations of the real outcomes of WSRR corroborate the insights garnered from the event study results. Notably, we find following WSRR, gig economy companies have an increased financial leverage, worse credit ratings, higher labor-related and other costs, and improved labor conditions. We report a large battery of additional tests supporting the robustness of these findings.

Our results may reflect a lower bound of the actual cash flow implications of worker-status reclassification, as WSRR are still in full development and more stringent and widespread regulations may come into place (Bourgery-Gonse, 2024; Wiessner, 2024). To the extent that shareholders anticipated these future regulations as of the initial WSRR event announcements considered in our study, however, our findings would already reflect their effects.

Our finding of a median stock price effect of −0.12% for WSRR events reflects the predicted cash flow impact on the average gig economy company of having to cease worker-status misclassification and reduce the reliance on independent contractors. As such, our study documents the economic value that gig economy companies gain by arbitraging between worker statuses, specifically by hiring workers who do not have regular employee status but should be treated as employees. Our results further suggest that a higher financial flexibility and favorable labor conditions can help gig economy companies withstand the adverse cash flow effects of WSRR. We find evidence indicating that gig economy-facilitating companies also need to pay attention to these regulations, as their stock prices are affected too. Furthermore, our study may be useful for policymakers in countries preparing the introduction of WSRR and may inform the current policy debate on the importance of reclassification of independent contractors.

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Table 1. Relevant dates and descriptions of WSRR events in the US and EU

Event	Event date (mm/dd/yy)	Region	Event description
Panel A: WSRR events			
A1	05/01/2018	US	California Supreme Court imposes strict requirements for employee classification in the case of same-day delivery company Dynamex. It establishes the "ABC" test to determine whether workers are classified as independent contractors or employees.
A2	05/03/2019	US	The Ninth Circuit issues its decision that the "ABC" test used to determine independent contractor status under California's Wage Orders operates retroactively.
A3	08/30/2019	US	Assembly Bill 5 (AB5) that gives most independent contractors employee status passes the California Senate Appropriations Committee with a 5-2 vote.
A4	09/18/2019	US	The Californian Governor signs AB5 into law.
A5	02/12/2020	US	A California District Court denies a preliminary injunction in a lawsuit brought by Uber and Postmates challenging the constitutionality of AB5.
A6	05/05/2020	US	The State Attorney General says California plans to sue Uber and Lyft, arguing the companies fail to abide by AB5 that reclassifies many gig economy workers as employees.
A7	08/10/2020	US	A judge of the California Superior Court issues a preliminary injunction barring Uber and Lyft from classifying their drivers as independent contractors, and instead to follow the terms of AB5.
A8	09/04/2020	US	California Governor Gavin Newsom signs AB2257 into law, which goes into effect immediately. AB2257 focuses largely on expanding and clarifying the exemptions to the "ABC test" under AB5.
A9	02/24/2021	EU	The European Commission launches a public consultation to examine the legal employment status and conditions of gig economy workers.
A10	06/22/2021	US	Massachusetts workers, community organizers, labor and civil-rights groups launch an effort to fight an expected ballot measure over worker classification.
A11	08/21/2021	US	A California judge declares that Proposition 22 is unenforceable, arguing several sections of the measure are unconstitutional under California state law.
A12	12/09/2021	EU	The European Commission publishes draft legislation against worker-status misclassification, shifting the burden of proof on worker status to companies rather than workers.
A13	05/09/2022	US	The Massachusetts gig economy worker initiative, patterned after California’s Proposition 22, may not make it to the ballot. The state’s highest court is skeptical that the initiative should qualify for the ballot.
A14	06/14/2022	US	The Massachusetts Supreme Judicial Court’s unanimous decision rules that the ballot initiative, patterned after California’s Proposition 22, violates state law and is ineligible to put to voters.
A15	10/11/2022	US	The US Labor Department unveils a proposal that makes it more likely for gig economy workers to be classified as employees rather than independent contractors.
A16	12/12/2022	EU	EU lawmakers agree to tougher draft gig labor rules ahead of negotiations with EU countries.
Panel B: Additional events associated with a decreased likelihood of WSRR adoption			
B1	03/13/2019	US	Uber offers to pay $20 million to settle a lawsuit brought by its Californian drivers. The lawsuit tries to maintain Uber's classification of its drivers as independent contractors instead of employees.

B2	10/29/2019	US	A coalition of drivers from Uber, Lyft, DoorDash, and other gig economy companies submit a California ballot initiative that aims to undo the new worker classification law, AB5.
B3	08/20/2020	US	Uber and Lyft threaten an imminent shutdown across California since they are unable to comply with AB5. The appeals court grants them an emergency stay and allows them to continue treating drivers as contractors.
B4	11/04/2020	US	California passes Proposition 22, allowing app-based transportation and delivery companies to circumvent state law AB5 and keep their drivers as independent contractors.

Notes. This table contains the event dates and descriptions associated with worker-status reclassification regulations (WSRR) in the US and EU, generated by a keyword search in Factiva and verified by other online sources. For the events occurring on a nontrading day or after stock market closure for the day in the corresponding stock market, we take the next trading day as the event date. *Panel A* provides 16 WSRR events associated with an increased likelihood of WSRR adoption, defined as WSRR events. *Panel B* provides four additional events associated with a decreased likelihood of WSRR adoption.

Table 2. Variable definitions and sources

Variable	Definition	Data source	Data item
ROA	Return on assets, calculated as net income after taxes divided by total assets, expressed as a percentage.	EIKON	100*TR.NetIncomeAfterTaxes/TR.TotalAssetsReported
Current Assets	Total current assets divided by total assets, expressed as a percentage.	EIKON	100*TR.TotalCurrentAssets/TR.TotalAssetsReported
Credit Rating	Moody's company rating. We convert ratings into numerical values, with the highest number 21 given to the best rating of Aaa. Cases in which Moody's ratings are missing are set as the lowest rating level.	EIKON	TR.SACTMoodysRating
Interest Coverage	Earnings before interest and taxes (EBIT) divided by interest expenses.	EIKON	TR.EBIT/TR.InterestExpense
Dividend Payout	Gross dividends on common stock divided by net income after taxes, expressed as a percentage.	EIKON	100*TR.GrossDividendsCmnStock/TR.NetIncomeAfterTaxes
COGS Expenses	Costs of goods sold (COGS) divided by total assets.	EIKON	TR.CostofRevenueTotal/TR.TotalAssetsReported
Labor Expenses	Labor-related expenses divided by total assets.	EIKON	TR.LaborRelatedExpense/TR.TotalAssetsReported
Employee-Related Controversies	Number of controversies published in the media linked to the company's relations with employees or related to wages or wage disputes.	EIKON	TR.ControvWorkingCondition
Workforce Score	A score measuring a company's effectiveness in terms of providing job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce.	EIKON	TR.TRESGWorkforceScore
Employee Satisfaction Score	A score measuring employee satisfaction as reported by the company.	EIKON	TR.EmployeeSatisfactionScore
Trade Union Representation	Percentage of employees represented by independent trade union organizations or covered by collective bargaining agreements.	EIKON	TR.TradeUnionRep
Labor Intensity	Number of employees multiplied by 100,000 divided by total assets.	EIKON	100000*TR.CompanyNumEmploy/TR.TotalAssetsReported
Number of Employees	Natural logarithm of one plus the company's number of full-time employees.	EIKON	ln(1+TR.CompanyNumEmploy)
R&D Expenses	Research and development (R&D) expenses divided by total assets.	EIKON	TR.ResearchAndDevelopment/TR.TotalAssetsReported
CAPEX	Capital expenditures (CAPEX) divided by total assets.	EIKON	TR.CapitalExpenditures/TR.TotalAssetsReported
Firm Size	Natural logarithm of one plus company's market capitalization.	EIKON	ln(1+TR.CompanyMarketCapitalization)
Market/Book	Market capitalization scaled by total equity (book value).	EIKON	TR.CompanyMarketCapitalization/TR.TotalEquity
Debt/Equity	Total debts divided by total equity.	EIKON	TR.TotalDebtOutstanding/TR.TotalEquity

Notes. This table provides definitions, data sources, and data items for the explanatory variables we use in the cross-sectional event study and difference-in-differences estimation, in the order of their first appearance. Balance sheet items, *Credit Rating*, *Employee-Related Controversies*, *Workforce Score*, *Employee Satisfaction Score*, *Trade Union Representation*, *Labor Intensity*, *Number of Employees*, and *Firm Size* are measured at the end of the fiscal year. Income sheet items (including *net income after taxes*, *EBIT*, *interest expenses*, *gross dividends on common stock*, *COGS*, *Labor Expenses*, *R&D Expenses*, and *CAPEX*) are measured over the corresponding fiscal year. All continuous variables are winsorized at 1% and 99%. For non-US companies, the unscaled values are expressed in US dollars, using the annual average foreign exchange rates.

Table 3. Descriptive statistics for variables used in the cross-sectional event study – Gig economy companies

Variables	*N*	Mean	Median	Std.	Min.	Max.
ROA	1,324	4.71	4.50	7.49	−28.84	35.74
Current Assets	1,324	27.39	26.22	17.17	0.00	70.36
Credit Rating	1,324	5.86	1.00	6.89	1.00	21.00
Interest Coverage	1,257	10.40	8.77	58.88	−306.60	285.90
Dividend Payout	1,324	28.71	21.92	35.61	0.00	261.60
COGS Expenses	1,150	0.57	0.40	0.48	0.00	2.86
Labor Expenses	1,324	0.04	0.00	0.10	0.00	0.47
Employee-Related Controversies	1,324	47.21	53.99	18.53	0.00	58.96
Workforce Score	1,324	60.31	64.86	28.54	1.85	99.06
Employee Satisfaction Score	1,324	8.36	0.00	23.68	0.00	98.15
Trade Union Representation	1,324	14.03	0.00	27.88	0.00	100.00
Labor Intensity	1,308	0.45	0.18	1.07	0.00	9.71
Firm Size (unlogged)	1,324	7.84×10^{10}	1.68×10^{10}	1.52×10^{11}	1.26×10^{8}	7.58×10^{11}
Firm Size	1,324	23.48	23.54	2.03	18.65	27.35
Market/Book	1,260	10.55	2.31	60.23	0.53	540.20
Debt/Equity	1,276	1.32	0.74	1.98	0.00	11.21

Notes. This table provides descriptive statistics for the explanatory and control variables considered in our cross-sectional analysis of stock price reactions of gig economy companies to the WSRR events. *N* denotes the number of observations and *Std.* denotes the standard deviation of variables. Other column titles are self-explanatory. Table 2 defines all the variables.

Table 4. Stock price reactions to WSRR events

Window	Mean	Median	*t*	Adj-Patell	Std-CrossSec	Gen-Sign
Panel A: Gig economy ecosystem (*N* = 2,483)						
[−1,1]	−0.38%	−0.01%	−2.341**	−1.192	−2.318**	−0.247
[−2,2]	−0.66%	−0.20%	−3.284***	−2.943***	−4.887***	−2.149**
[−5,5]	−0.87%	−0.33%	−2.897***	−2.777***	−3.061***	−2.253**
Panel B: Gig economy companies (*N* = 1,612)						
[−1,1]	−0.39%	0.03%	−1.922*	−1.155	−1.840*	0.255
[−2,2]	−0.65%	−0.12%	−2.573**	−2.729***	−3.715***	−1.388
[−5,5]	−0.93%	−0.27%	−2.460**	−3.328***	−2.769***	−1.739*
Panel C: Gig economy facilitators (*N* = 871)						
[−1,1]	−0.36%	−0.08%	−1.336	−0.843	−1.409	−0.757
[−2,2]	−0.68%	−0.35%	−2.048**	−2.240**	−3.193***	−1.739*
[−5,5]	−0.76%	−0.46%	−1.538	−1.142	−1.321	−1.438

Notes. This table provides the results of a univariate event study of stock price reactions to the WSRR events in the US and EU. *Panel A* reports stock price reactions for all companies belonging to the gig economy ecosystem, including gig economy companies and gig economy facilitators. *Panel B* reports stock price reactions for gig economy companies. *Panel C* reports stock price reactions for gig economy facilitators. Columns *Mean* and *Median* report the means and medians of cumulative abnormal returns (*CAR*). We report the statistical significance of *CAR* with a *t*-test, Adjusted Patell test, Standardized cross-sectional test, and Generalized sign test. *N* equals the number of observations. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table 5. Cross-sectional event study of stock price reactions to WSRR events – Gig economy companies

	Predicted impact	(1)	(2)	(3)	(4)
ROA	(+)	0.040***		0.037***	−0.008
		(3.263)		(4.498)	(−1.135)
Current Assets	(+)	0.014**		0.021***	0.017***
		(2.357)		(3.398)	(16.790)
Credit Rating	(+)	0.039***		0.046***	0.056***
		(3.393)		(13.438)	(5.051)
Interest Coverage	(+)	0.005		0.004	0.007***
		(1.218)		(1.004)	(7.615)
Dividend Payout	(+)	0.011**		0.009***	0.010***
		(3.122)		(4.604)	(7.205)
COGS Expenses	(+/−)	−0.673***		−0.691***	−0.399***
		(−17.684)		(−26.165)	(−4.730)
Labor Expenses	(−)	−1.890***		−1.161***	−2.721***
		(−9.363)		(−6.731)	(−25.049)
Employee-Related Controversies	(−)		−0.010***	−0.006	−0.466***
			(−5.581)	(−1.725)	(−12.043)
Workforce Score	(+)		0.005***	0.006***	0.006***
			(4.445)	(15.747)	(4.716)
Employee Satisfaction Score	(+)		0.008*	0.019***	0.026***
			(1.868)	(7.099)	(5.299)
Trade Union Representation	(+)		0.002	0.002	−0.001
			(0.792)	(1.447)	(−0.990)
Labor Intensity	(+/−)	−0.233***	−0.368***	−0.236***	−0.113***
		(−6.489)	(−25.397)	(−34.887)	(−8.709)
Firm Size		−0.066	0.023	−0.113	−0.130***
		(−0.717)	(1.445)	(−1.715)	(−84.980)
Market/Book		−0.003***	−0.003***	−0.003***	−0.001**
		(−4.108)	(−8.191)	(−4.332)	(−3.126)
Debt/Equity		0.212***	0.121***	0.179***	0.151***
		(24.856)	(7.534)	(37.009)	(39.242)
Observations		1,084	1,243	1,084	1,084
Year Fixed Effects		YES	YES	YES	YES
Industry Fixed Effects		YES	YES	YES	YES
Country Fixed Effects		YES	YES	YES	YES
Clustered SE - country level		YES	YES	YES	YES
Missing Value Controls		NO	NO	NO	YES
R-squared		0.058	0.054	0.059	0.062

Notes. This table provides results of OLS regressions analyzing the determinants of stock price reactions for gig economy companies to the WSRR events in the US and EU. The dependent variable, *CAR*, is the firm-specific five-day (–2, +2) cumulative abnormal return for each event, expressed as a percentage. *Predicted impact* presents our predicted impacts of proxy variables capturing our hypotheses on the shareholder value effect of WSRR. + (−) indicates a positive (negative) predicted impact and +/− an ambiguous prediction. Column (1) contains the proxy variables capturing firms' financial flexibility. Column (2) contains the proxy variables capturing labor conditions. Column (3) combines all proxy variables. Column (4) includes binary controls for observations with missing values. Control variables include *Firm size*, *Market/Book*, and *Debt/Equity*. The controls for missing values include indicator variables which equal one when a missing value of *Labor Expenses*, *Employee-Related Controversies*, *Employee Satisfaction Score*, or *Trade Union Representation* is replaced by zero. All explanatory and control variables are measured in the fiscal year 2018. *t*-statistics reported in parentheses are based on robust standard errors clustered at the country level. Table 2 defines all the variables. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table 6. Cross-sectional event study of stock price reactions to WSRR events – Gig economy facilitators

	Predicted impact	(1)	(2)	(3)	(4)
ROA	(+)	0.088***		0.064**	0.063**
		(58.304)		(2.962)	(3.261)
Current Assets	(+)	−0.005		0.002	−0.001
		(−0.422)		(1.268)	(−0.093)
Credit Rating	(+)	0.093**		0.078	0.081**
		(2.670)		(1.669)	(2.403)
Interest Coverage	(+)	0.006		0.006***	−0.002
		(1.766)		(4.688)	(−0.190)
Dividend Payout	(+)	0.006		0.011**	−0.021
		(0.481)		(2.370)	(−1.605)
COGS Expenses	(+/−)	−0.803***		−1.037***	−0.768***
		(−3.742)		(−6.162)	(−3.657)
Employee-Related Controversies	(−)		−0.023**	−0.003	−0.533**
			(−2.936)	(−0.601)	(−2.710)
Workforce Score	(+)		−0.001	−0.004	0.009
			(−0.610)	(−1.148)	(1.113)
Employee Satisfaction Score	(+)		0.029**	0.026	0.017
			(2.735)	(1.109)	(0.496)
Trade Union Representation	(+)		0.022***	0.005	−0.001
			(5.957)	(0.510)	(−0.024)
Firm Size		−0.028	−0.040	−0.162	−0.217
		(−0.849)	(−0.700)	(−1.313)	(−1.835)
Market/Book		−0.060**	0.003	−0.039	−0.056**
		(−2.428)	(0.292)	(−1.083)	(−2.522)
Debt/Equity		−0.039	−0.159***	−0.127	−0.062
		(−0.279)	(−3.520)	(−0.674)	(−0.697)
Observations		622	686	622	622
Year Fixed Effects		YES	YES	YES	YES
Industry Fixed Effects		YES	YES	YES	YES
Country Fixed Effects		YES	YES	YES	YES
Clustered SE - country level		YES	YES	YES	YES
Missing Value Controls		NO	NO	NO	YES
R-squared		0.074	0.063	0.076	0.085

Notes. This table provides results of OLS regressions analyzing the determinants of stock price reactions for gig economy facilitators to the WSRR events in the US and EU. The dependent variable, *CAR*, is the firm-specific five-day (–2, +2) cumulative abnormal return for each event, expressed as a percentage. *Predicted impact* presents our predicted impacts of proxy variables capturing our hypotheses on the shareholder value effect of WSRR. + (−) indicates a positive (negative) predicted impact and +/− an ambiguous prediction. Column (1) contains the proxy variables capturing firms' financial flexibility. Column (2) contains the proxy variables capturing labor conditions. Column (3) combines all proxy variables. Column (4) includes binary controls for observations with missing values. Control variables include *Firm size*, *Market/Book*, and *Debt/Equity*. The controls for missing values include indicator variables which equal one when a missing value of *Labor Expenses*, *Employee-Related Controversies*, *Employee Satisfaction Score*, or *Trade Union Representation* is replaced by zero. All explanatory and control variables are measured in the fiscal year 2018. *t*-statistics reported in parentheses are based on robust standard errors clustered at the country level. Table 2 defines all the variables. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table 7. Long-term stock price reactions to WSRR events

Window	*BHAR*-Mean	*BHAR*-Median	*t*	Skewness-adjusted bootstrapped *t*
Panel A: Gig economy ecosystem (*N* = 766)				
[2,30]	0.01%	0.00%	0.003	0.146
[2,60]	−0.90%	−2.44%	−0.337	−0.188
[2,90]	2.01%	−3.56%	1.120	1.676
Panel B: Gig economy companies (*N* = 494)				
[2,30]	2.50%	0.22%	0.611	0.874
[2,60]	0.15%	−2.98%	0.039	0.178
[2,90]	2.46%	−4.02%	0.516	0.723

Notes. This table provides the results of a long-term univariate event study of stock price reactions to US and EU WSRR events that are not contaminated by other WSRR events in the following 120 days. The longest event window we adopt is the three-month window (+2, +90). Studying events separated from subsequent events by an interval of at least four months (120 days) ensures that our estimation windows are not contaminated. *Panel A* reports stock price reactions for all companies belonging to the gig economy ecosystem, including gig economy companies and gig economy facilitators. *Panel B* reports stock price reactions for gig economy companies. Columns *BHAR-Mean* and *BHAR-Median* report the means and medians of the buy-and-hold abnormal return (*BHAR*). We report the statistical significance of *BHAR* with a *t*-test and Skewness-adjusted bootstrapped *t*-test (Lyon et al., 1999). *N* equals the number of observations. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table 8. Real firm outcomes of WSRR on gig economy companies

	(1)	(2)	(3)	(4)
Variables	ROA	Current Assets	Credit Rating	Debt/Equity
Predicted change	(−)	(−)	(−)	(+)
Treated×Post	0.892	0.010	−0.738*	0.439**
	(0.800)	(0.901)	(−1.749)	(2.531)
Observations	1,008	1,008	1,008	1,008
Controls	YES	YES	YES	YES
Year×Country Fixed Effects	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES
Clustered SE - firm level	YES	YES	YES	YES
Parallel Trend Test	FAIL	FAIL	PASS	PASS
R-squared	0.730	0.939	0.910	0.831

	(5)	(6)	(7)	(8)	(9)
Variables	Labor Expenses	Number of Employees	R&D Expenses	CAPEX	COGS Expenses
Predicted change	(+)	(+)	(+/−)	(+/−)	(+/−)
Treated×Post	0.009**	0.204***	−0.002	0.005	0.052*
	(2.223)	(3.318)	(−0.683)	(1.409)	(1.832)
Observations	1,008	993	1,008	1,008	1,008
Controls	YES	YES	YES	YES	YES
Year×Country Fixed Effects	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES
Clustered SE - firm level	YES	YES	YES	YES	YES
Parallel Trend Test	PASS	PASS	FAIL	FAIL	PASS
R-squared	0.975	0.976	0.889	0.828	0.961

	(10)	(11)	(12)	(13)
Variables	Employee-Related Controversies	Workforce Score	Employee Satisfaction Score	Trade Union Representation
Predicted change	(−)	(+)	(+)	(+)
Treated×Post	−3.842**	−0.340	4.424*	−0.883
	(−2.480)	(−0.123)	(1.687)	(−0.402)
Observations	1,008	1,008	1,008	1,088
Controls	YES	YES	YES	YES
Year×Country Fixed Effects	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES
Clustered SE - firm level	YES	YES	YES	YES
Parallel Trend Test	PASS	FAIL	FAIL	FAIL
R-squared	0.740	0.841	0.589	0.856

Notes. This table reports the real firm outcomes of WSRR. *Treated×Post* equals one if the firm is identified as gig economy company (*Treated* = 1) and affected by WSRR (*Post* = 1). *Predicted change* presents our predicted changes of proxy variables capturing our hypotheses on the financial position and labor condition outcomes of WSRR. + (−) indicates a positive (negative) predicted change and +/− an ambiguous prediction. We consider the same control variables, *Firm size*, *Market/Book*, and *Debt/Equity* as in the cross-sectional analysis of stock price reactions. *t*-statistics reported in parentheses are based on robust standard errors clustered at the firm level. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Appendix A: Background of timing and motivation for WSRR events

1. Gig economy WSRR in the United States

In the US, California has been the main battleground for WSRR. The introduction of the ABC test, which serves to distinguish employees from independent contractors, marked the beginning of these regulations. Notably, on May 1, 2018, the California Supreme Court used the three-pronged ABC test in determining whether to classify workers as employees or independent contractors in the case of delivery company Dynamex Operations West, Inc. (Event A1). Employers were mandated to ensure that a worker classified as an independent contractor passed each of the three components of the ABC test (California Supreme Court, 2018).[1] On March 13, 2019, Uber settled a legal battle with drivers in California and Massachusetts and agreed to pay $20 million to preserve their employment status as independent contractors (Event B1). On May 3, 2019, the Ninth Circuit ruled that the ABC test could operate retroactively (Event A2). Then, the California Assembly Bill 5 (AB5), which codified and expanded the scope of the ABC test, passed the California Senate Appropriations Committee on August, 30 (Event A3) and was signed into law by the Governor on September 18, 2019 (Event A4). In the aftermath of this event, gig economy companies started a campaign against the WSRR. On October 29, 2019, a coalition of gig economy companies submitted a California ballot initiative to override AB5 (Event B2). Gig economy companies also brought lawsuits and claimed that AB5 was unconstitutional, but a District Court denied the injunction on February 12, 2020 (Event A5). The state of

[1] The three factors of the ABC test are: (A) The worker is free from the control and direction of the hiring entity in connection with the performance of the work, both under the contract for the performance of the work and in fact; (B) The worker performs work that is outside the usual course of the hiring entity's business; and (C) The worker is customarily engaged in an independently established trade, occupation, or business of the same nature as that involved in the work performed.

California sued Uber and Lyft on May 5, 2020, arguing the companies failed to obey AB5 (Event A6), and a Superior Court judge issued a preliminary injunction on August 10, 2020, barring Uber and Lyft from classifying their drivers as independent contractors and forcing them to follow AB5 (Event A7). To resist Event A7, Uber and Lyft threatened an imminent shutdown across California on the same date, and an appeals court subsequently reached a compromise by granting the companies an emergency stay and allowing them to continue treating the drivers as independent contractors on August 20, 2020 (Event B3). On September 4, 2020, AB 2257 went into effect and expanded the exemptions to the ABC test under AB5 (Event A8). On November 4, 2020, California Proposition 22 passed and marked a temporary victory for gig economy companies (Event B4). Proposition 22 allowed app-based transportation and delivery companies to circumvent AB5 and still treat their drivers as independent contractors. However, this proposition was claimed to be unenforceable and unconstitutional under California state law on August 21, 2021 (Event A11).

Following California, the controversy over WSRR has also been intense in Massachusetts. On June 22, 2021, Massachusetts workers, community organizers, labor and civil-rights groups launched an effort to fight a planned Massachusetts gig economy worker initiative, patterned after California Proposition 22, which classified ride-hailing and delivery drivers as independent contractors (Event A10). On May 9, 2022, the state's Supreme Court questioned whether the initiative qualified for the ballot measure (Event A13). The Supreme Court's unanimous decision ruled the Massachusetts gig worker initiative violated state law and was ineligible to be put to voters on June 14, 2022 (Event A14).

The Biden administration has also supported WSRR at the national level. On October 11, 2022, the US Labor Department unveiled a proposal that would make it more likely for gig economy workers to be classified as employees rather than independent contractors (Event A15).

Overall, while there are many challenges and setbacks in the US, the general trend is to provide workers with more labor protection and reduce employee misclassification.

2. Gig economy WSRR in the European Union

The process of WSRR in Europe is more straightforward. The European Commission launched a public consultation on this question on February 24, 2021 (Event A9). On December 9, 2021, the EU Commission published the new draft legislation that requires gig economy workers to be classified as employees instead of independent contractors if the employment meets some criteria. The burden of proof on worker status would shift to companies, rather than the workers (Event A12). On December 12, 2022, the EU Commission agreed to more rigid draft rules before negotiations with EU countries to clarify details (Event A16).

Appendix B: Additional figures and tables

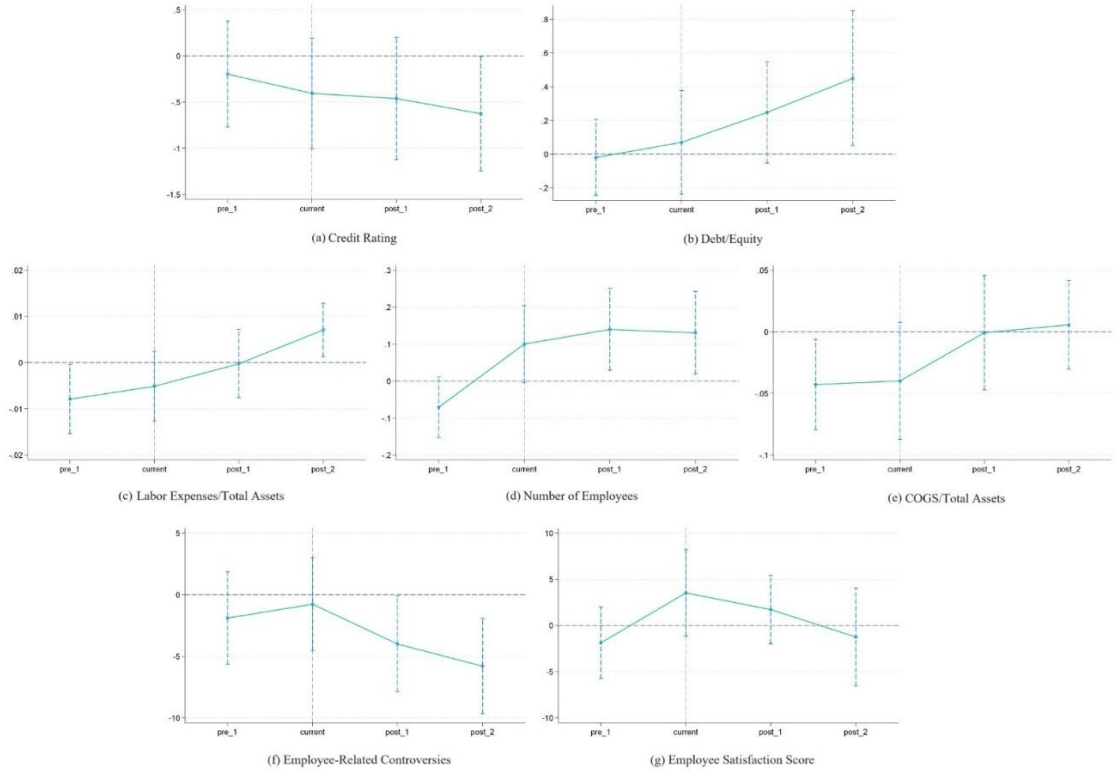

Figure B1. Parallel trend tests for the variables with a significant *Treated*×*Post* term in the Difference-in-Differences estimation

Notes. This figure presents the dynamic effects of WSRR for the variables with a significant *Treated*×*Post* term in the difference-in-differences estimation. The *X-axis* indicates the fiscal year, and the *Y-axis* indicates the values of the coefficients of *Treated*×*Year*. *Treated*×*Year* equals one if the firm is identified as a gig economy company (*Treated* = 1) and the corresponding fiscal year is 2017 (Pre_1), 2018 (*Current*), 2019 ($Post_1$), or 2020 ($Post_2$). The dashed lines represent the 90% confidence intervals for *Treated*×*Year*. We consider the same control variables, *Firm size*, *Market/Book*, and *Debt/Equity* as in the cross-sectional analysis of stock price reactions. Standard errors are clustered at the firm level. All tests are two-tailed.

Table B1. Keywords used for gig economy company and facilitator identification

Group	Keywords
(1)	Gig economy; gig work*; gig contractor*; labor platform*
(2)	On demand economy; on demand work*; on demand contractor*; on-demand economy; on-demand work*; on-demand contractor*
(3)	Independent work*; independent contractor*
(4)	Self-employed worker*; self employed worker*; self-employed contractor*; self employed contractor*
(5)	Worker* reclassification; worker* misclassification; reclassification of worker*; misclassification of worker*
(6)	Employee* reclassification; employee* misclassification; reclassification of employee*; misclassification of employee*
(7)	Employee* status; status of employee*; employment status; status of employment
(8)	Worker* status; status of worker*
(9)	Precarious work*; precarious employment; precarious labor
(10)	Contingent work*; contingent employment; contingent labor

Note: We use these ten groups of keywords to identify a global set of gig economy companies and their facilitators. We use all these keyword combinations as the search filters in Factiva, focusing on a time horizon from January 1, 2009 to December 31, 2022. An asterisk/wildcard symbol (*) is used to search for alternate spellings and variations on a root word in Factiva.

Table B2. Top 10 gig economy companies and facilitators with the most Factiva mentions

Panel A: Top 10 gig economy companies with the most Factiva mentions

Company name	Country of domicile	Industry	Factiva mentions	ETF coverage
Uber Technologies Inc.	US	Taxicab, Food Delivery Services, and Online Transportation Booking Services	24,664	YES
Lyft, Inc.	US	Taxicab and Online Transportation Booking Services	5,867	YES
Deliveroo PLC	UK	Restaurants, Online Food Retail, and Logistics Softwares	3,707	NO
DoorDash Inc.	US	Restaurants, Online Food Retail, and Logistics Softwares	2,938	YES
Amazon.com, Inc.	US	Electronic Shopping and Mail-Order Houses and Multimedia Streaming Servies	2,180	YES
FedEx Corporation	US	Transportation, Logistics and Courier Services, IT and Communication Services	1,578	YES
Just Eat Takeaway.com NV	Netherlands	Restaurants, Online Food Retail, and Logistics Softwares	1,572	YES
Walmart Inc	US	Consumer Staples Distribution and Retail	782	NO
XPO Logistics Inc.	US	Transportation, Warehousing, and Storage	689	NO
Upwork Inc	US	Online services, web search portals, and all other information services	623	YES

Panel B: Top 10 gig economy facilitators with the most Factiva mentions

Company name	Country of domicile	Industry	Factiva mentions	ETF coverage
Adecco Group AG	Switzerland	Human Resource and Employment Services, IT Services	1,142	NO
Intuit Inc	US	Accounting, Auditing and Taxation Services, Human Resource and Employment Services	583	NO
ManpowerGroup Inc.	US	Human Resource and Employment Services, IT Services	554	NO
Zebra Technologies Corporation	US	Information Technology, and Commercial Services and Supplies	381	NO
MasterCard Inc.	US	Transaction and Payment Processing Services	265	NO
Protective Insurance Corporation	US	Financial Services and Insurance	247	NO
Visa Inc.	US	Transaction and Payment Processing Services	233	NO
HyreCar Inc.	US	Automotive Rental and Leasing	229	NO
Herc Holdings Inc.	US	Construction Machinery Distribution, Rental and Leasing, and Diversified Supports	199	NO
HireQuest Inc	US	Human Resource and Employment Services, IT Services	182	NO
PayPal Holdings Inc	US	Transaction and Payment Processing Services	171	YES

Notes. This table provides the list of gig economy companies (*Panel A*) and gig economy facilitators (*Panel B*) with the most Factiva mentions in our search. The table also reports the firms' country of domicile and industry, the number of Factiva mentions, and whether the company is included in the SoFi Gig Economy ETF.

Table B3. Pearson correlation matrix for variables used in the cross-sectional event study

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) ROA	1.00											
(2) Current Assets	0.16***	1.00										
(3) Credit Rating	0.01	−0.21***	1.00									
(4) Interest Coverage	0.36***	−0.12***	0.23***	1.00								
(5) Dividend Payout	−0.01	−0.32***	0.18***	0.05*	1.00							
(6) COGS Expenses	0.36***	0.46***	−0.25***	0.15***	0.04	1.00						
(7) Labor Expenses	0.06**	0.00	−0.24***	0.03	−0.19***	−0.13***	1.00					
(8) Employee-Related Controversies	−0.05*	0.12***	−0.16***	−0.25***	−0.12***	0.05*	0.16***	1.00				
(9) Workforce Score	0.06**	−0.27***	0.53***	0.22***	0.33***	−0.10***	−0.29***	−0.35***	1.00			
(10) Employee Satisfaction Score	−0.10***	−0.30***	0.17***	0.08***	0.13***	−0.02	−0.15***	−0.36***	0.30***	1.00		
(11) Trade Union Representation	−0.04	−0.07**	−0.06**	0.08***	0.19***	−0.03	−0.08***	−0.29***	0.38***	0.24***	1.00	
(12) Labor Intensity	−0.38***	0.02	−0.19***	−0.06**	−0.13***	−0.02	0.01	0.05*	−0.18***	−0.08***	−0.04	1.00

Notes. This table provides pairwise Pearson correlation coefficients between the explanatory variables considered in the cross-sectional analysis of stock price reactions to WSRR events of gig economy companies. Table 2 defines all variables. The significance of correlation coefficients is tested using a *t*-test. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table B4. Stock price reactions to WSRR events – Market Adjusted Model

Window	Mean	Median	*t*	Adj-Patell	Std-CrossSec	Gen-Sign
Panel A: Gig economy ecosystem (*N* = 2,483)						
[−1,1]	−0.55%	0.06%	−3.278***	−1.219	−2.478**	1.369
[−2,2]	−1.12%	−0.15%	−5.435***	−3.215***	−5.275***	−0.451
[−5,5]	−1.79%	−0.58%	−5.801***	−4.367***	−5.535***	−2.566**
Panel B: Gig economy companies (*N* = 1,612)						
[−1,1]	−0.59%	0.06%	−2.822***	−1.160	−1.831*	1.313
[−2,2]	−1.09%	−0.08%	−4.224***	−2.645***	−3.349***	0.255
[−5,5]	−1.89%	−0.47%	−4.890***	−4.714***	−4.371***	−1.543
Panel C: Gig economy facilitators (*N* = 871)						
[−1,1]	−0.47%	0.05%	−1.691*	−0.888	−1.690*	0.524
[−2,2]	−1.17%	−0.30%	−3.435***	−2.804***	−4.369***	−1.107
[−5,5]	−1.60%	−0.72%	−3.133***	−2.554**	−3.463***	−2.233**

Notes. This table provides the results of a univariate event study of stock price reactions to the WSRR events in the US and EU, adopting the Market Adjusted Model instead of the Market Model we use in the main analysis. *Panel A* reports stock price reactions for all companies belonging to the gig economy ecosystem, including gig economy companies and gig economy facilitators. *Panel B* reports stock price reactions for gig economy companies. *Panel C* reports stock price reactions for gig economy facilitators. Columns *Mean* and *Median* report the means and medians of the cumulative abnormal return (*CAR*). We report the statistical significance of *CAR* with a *t*-test, Adjusted Patell test, Standardized cross-sectional test, and Generalized sign test. *N* equals the number of observations. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table B5. Stock price reactions to WSRR events, by region

Window	Mean	Median	*t*	Adj-Patell	Std-CrossSec	Gen-Sign
Panel A: Gig economy ecosystem						
US events (*N* = 2,006)						
[−1,1]	−0.27%	0.10%	−1.578	−0.666	−1.2311	1.052
[−2,2]	−0.57%	−0.13%	−2.713***	−2.673***	−4.295***	−1.829*
[−5,5]	−0.66%	−0.27%	−2.108**	−2.555**	−2.630***	−1.586
EU events (*N* = 477)						
[−1,1]	−0.79%	−0.22%	−1.837*	−1.283	−2.966***	−2.536**
[−2,2]	−1.03%	−0.38%	−1.853*	−1.291	−2.339**	−1.162
[−5,5]	−1.74%	−0.49%	−2.084**	−1.156	−1.685*	−1.895*
Panel B: Gig economy companies						
US events (*N* = 1,302)						
[−1,1]	−0.29%	0.15%	−1.369	−0.473	−0.715	1.242
[−2,2]	−0.59%	−0.09%	−2.240**	−2.272**	−2.978***	−0.990
[−5,5]	−0.75%	−0.27%	−1.918*	−3.363***	−2.594**	−1.435
EU events (*N* = 310)						
[−1,1]	−0.76%	−0.19%	−1.394	−1.562	−3.033***	−1.821*
[−2,2]	−0.90%	−0.34%	−1.272	−1.568	−2.405**	−1.139
[−5,5]	−1.66%	−0.25%	−1.562	−0.824	−0.965	−1.025
Panel C: Gig economy facilitators						
US events (*N* = 704)						
[−1,1]	−0.23%	0.05%	−0.801	−0.752	−1.109	0.091
[−2,2]	−0.54%	−0.29%	−1.531	−2.493**	−3.211***	−1.741*
[−5,5]	−0.49%	−0.23%	−0.941	−0.708	−0.726	−0.725
EU events (*N* = 167)						
[−1,1]	−0.85%	−0.41%	−1.213	−0.570	−0.956	−1.806*
[−2,2]	−1.28%	−0.47%	−1.419	−0.578	−0.750	−0.412
[−5,5]	−1.89%	−1.09%	−1.406	−1.358	−1.550	−1.806*

Notes. This table provides the results of a univariate event study of stock price reactions to the WSRR events in the US and EU by region. *Panel A* reports stock price reactions for all companies belonging to the gig economy ecosystem, including gig economy companies and gig economy facilitators. *Panel B* reports stock price reactions for gig economy companies. *Panel C* reports stock price reactions for gig economy facilitators. Columns *Mean* and *Median* report the means and medians of the cumulative abnormal return (*CAR*). We report the statistical significance of *CAR* with a *t*-test, Adjusted Patell test, Standardized cross-sectional test, and Generalized sign test. *N* equals the number of observations. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table B6. Stock price reactions to events decreasing the likelihood of WSRR adoption, and to all events

Window	Mean	Median	*t*	Adj-Patell	Std-CrossSec	Gen-Sign
Panel A: Events decreasing the likelihood of WSRR adoption						
Gig economy ecosystem (N = 612)						
[−1,1]	−0.25%	−0.15%	−0.794	−0.141	−0.318	−1.301
[−2,2]	−0.32%	−0.17%	−0.814	0.134	0.254	−0.978
[−5,5]	0.16%	0.08%	0.272	−0.707	−0.992	0.235
Gig economy companies (N = 395)						
[−1,1]	−0.55%	−0.24%	−1.406	−0.973	−1.574	−1.972**
[−2,2]	−0.89%	−0.46%	−1.778*	−0.847	−1.174	−2.374**
[−5,5]	−0.73%	−0.57%	−0.986	−0.934	−1.110	−1.569
Gig economy facilitators (N = 217)						
[−1,1]	0.30%	0.16%	0.600	1.025	2.176**	0.475
[−2,2]	0.71%	0.62%	1.081	1.455	2.492**	1.562
[−5,5]	1.79%	1.56%	1.839*	−0.269	−0.254	2.512**
Panel B: All events						
Gig economy ecosystem (N = 3,095)						
[−1,1]	−0.35%	−0.05%	−2.444**	−1.113	−2.240**	−0.817
[−2,2]	−0.59%	−0.20%	−3.308***	−2.522**	−4.32***	−2.362**
[−5,5]	−0.67%	−0.22%	−2.486**	−2.768***	−3.207***	−1.915**
Gig economy companies (N = 2,007)						
[−1,1]	−0.43%	−0.06%	−2.355**	−1.489	−2.350**	−0.687
[−2,2]	−0.70%	−0.21%	−3.093***	−2.855***	−3.85***	−2.298**
[−5,5]	−0.89%	−0.31%	−2.644***	−3.436***	−2.980***	−2.256**
Gig economy facilitators (N = 1088)						
[−1,1]	−0.22%	−0.02%	−0.909	−0.311	−0.557	−0.445
[−2,2]	−0.40%	−0.16%	−1.357	−1.353	−2.043**	−0.862
[−5,5]	−0.25%	−0.01%	−0.568	−1.109	−1.271	−0.165

Notes. This table provides the results of a univariate event study of stock price reactions to four events decreasing the likelihood of WSRR adoption and all events (including events increasing or decreasing the likelihood of WSRR adoption) in the US and EU. *Panel A* reports stock price reactions for all companies belonging to the gig economy ecosystem (including gig economy companies and gig economy facilitators), gig economy companies, and gig economy facilitators to the events decreasing the likelihood of WSRR adoption. *Panel B* reports stock price reactions for all companies belonging to the gig economy ecosystem (including gig economy companies and gig economy facilitators), gig economy companies, and gig economy facilitators to all events. Columns *Mean* and *Median* report the means and medians of the cumulative abnormal return (*CAR*). We report the statistical significance of *CAR* with a *t*-test, Adjusted Patell test, Standardized cross-sectional test, and Generalized sign test. *N* equals the number of observations. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table B7. Covariate balance test for propensity score matching

	Before Matching (the full sample)			After Matching		
Variables	*N*-Treated	*N*-Control	*t*-test for mean difference	*N*-Treated	*N*-Control	*t*-test for mean difference
Firm Size	90	6,698	1.732***	73	65	−0.101
Market/Book	90	6,698	1.187***	73	65	−1.478
Debt/Equity	90	6,697	0.467***	73	65	0.315
ROA	90	6,698	2.463	73	65	0.984
Credit Rating	90	6,698	3.776***	73	65	−0.297
Labor Intensity	89	5,902	0.000	72	65	0.000

Notes. This table reports covariate balance test results for the treated and control firms, before and after propensity score matching. We conduct a one-to-one nearest neighbor matching (caliper = 0.01) with replacement, and match treated and control firms in 2018 within the same industry (NAICS 2-digit code) and country. In addition to the control variables which we use in the cross-sectional analysis of stock price reactions, including *Firm size*, *Market/Book*, and *Debt/Equity*, we also take *ROA*, *Credit Rating*, and *Labor Intensity* into account as matching variables. *Before Matching (the full sample)* reports the number of treated firms we have in 2018, the number of potential control firms available in 2018, and the differences in the means of matching variables for them. *After Matching* reports the number of treated firms, the number of control firms, and the differences in the means of matching variables for the treated and control firms after propensity score matching. The differences are tested by a *t*-test. We drop the treated firms for which we cannot find matched control firms, thus the number of treated firms decreases after matching. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Appendix C: Robustness tests of cross-sectional event study

Table C1. Cross-sectional event study of stock price reactions to WSRR events – Gig economy companies (with alternative fixed effects)

	Predicted impact	(1)	(2)	(3)	(4)
ROA	(+)	0.039**		0.036***	−0.009
		(3.130)		(4.350)	(−1.257)
Current Assets	(+)	0.014**		0.022***	0.017***
		(2.320)		(3.334)	(14.865)
Credit Rating	(+)	0.039***		0.047***	0.057***
		(3.376)		(13.612)	(4.862)
Interest Coverage	(+)	0.004		0.003	0.007***
		(1.116)		(0.893)	(6.735)
Dividend Payout	(+)	0.011**		0.009***	0.010***
		(3.089)		(4.424)	(6.808)
COGS Expenses	(+/−)	−0.670***		−0.688***	−0.385***
		(−17.998)		(−27.299)	(−4.197)
Labor Expenses	(−)	−1.884***		−1.149***	−2.705***
		(−9.319)		(−6.352)	(−25.684)
Employee-Related Controversies	(−)		−0.010***	−0.006	−0.481***
			(−5.354)	(−1.697)	(−10.849)
Workforce Score	(+)		0.005***	0.006***	0.006***
			(3.434)	(16.685)	(4.236)
Employee Satisfaction Score	(+)		0.008*	0.019***	0.025***
			(1.878)	(7.200)	(4.998)
Trade Union Representation	(+)		0.002	0.003	−0.001
			(0.802)	(1.442)	(−0.835)
Labor Intensity	(+/−)	−0.235***	−0.369***	−0.237***	−0.110***
		(−6.590)	(−26.950)	(−35.142)	(−8.151)
Firm Size		−0.063	0.024	−0.109	−0.127***
		(−0.663)	(1.487)	(−1.589)	(−59.306)
Market/Book		−0.003***	−0.003***	−0.003***	−0.001**
		(−4.038)	(−8.249)	(−4.168)	(−2.942)
Debt/Equity		0.212***	0.122***	0.179***	0.150***
		(24.302)	(7.663)	(35.812)	(41.260)
Observations		1,079	1,238	1,079	1,079
Year×Country Fixed Effects		YES	YES	YES	YES
Industry Fixed Effects		YES	YES	YES	YES
Clustered SE - country level		YES	YES	YES	YES
Missing Value Controls		NO	NO	NO	YES
R-squared		0.095	0.089	0.096	0.100

Notes. This table provides results of OLS regressions with alternative fixed effects analyzing the determinants of stock price reactions for gig economy companies to the WSRR events in the US and EU. The dependent variable, *CAR*, is the firm-specific five-day (–2, +2) cumulative abnormal return for each event, expressed as a percentage. *Predicted impact* presents our predicted impacts of proxy variables capturing our hypotheses on the shareholder value effect of WSRR. + (−) indicates a positive (negative) predicted impact and +/− an ambiguous prediction. Column (1) contains the proxy variables capturing firms' financial flexibility. Column (2) contains the proxy variables capturing labor conditions. Column (3) combines all proxy variables. Column (4) includes binary controls for observations with missing values. Control variables include *Firm size*, *Market/Book*, and *Debt/Equity*. The controls for missing values include indicator variables which equal one when a missing value of *Labor Expenses*, *Employee-Related Controversies*, *Employee Satisfaction Score*, or *Trade Union Representation* is replaced by zero. All explanatory and control variables are measured in the fiscal year 2018. *t*-statistics reported in parentheses are based on robust standard errors clustered at the country level. Table 2 defines all the variables. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table C2. Cross-sectional event study of stock price reactions to WSRR events – Gig economy facilitators (with alternative fixed effects)

	Predicted impact	(1)	(2)	(3)	(4)
ROA	(+)	0.088***		0.065**	0.064***
		(58.493)		(3.103)	(3.599)
Current Assets	(+)	−0.005		0.002	−0.001
		(−0.424)		(1.384)	(−0.120)
Credit Rating	(+)	0.093**		0.078	0.082*
		(2.678)		(1.679)	(2.337)
Interest Coverage	(+)	0.006		0.006***	−0.001
		(1.772)		(4.636)	(−0.095)
Dividend Payout	(+)	0.006		0.011**	−0.018
		(0.482)		(2.464)	(−1.571)
COGS Expenses	(+/−)	−0.803***		−1.033***	−0.787***
		(−3.754)		(−6.373)	(−4.251)
Employee-Related Controversies	(−)		−0.022**	−0.003	−0.485**
			(−2.843)	(−0.484)	(−2.824)
Workforce Score	(+)		−0.001	−0.003	0.008
			(−0.577)	(−1.154)	(1.112)
Employee Satisfaction Score	(+)		0.028**	0.025	0.016
			(2.797)	(1.107)	(0.495)
Trade Union Representation	(+)		0.022***	0.004	0.000
			(6.011)	(0.485)	(0.008)
Firm Size		−0.028	−0.038	−0.159	−0.210
		(−0.851)	(−0.671)	(−1.320)	(−1.801)
Market/Book		−0.060**	0.003	−0.040	−0.055**
		(−2.436)	(0.270)	(−1.125)	(−2.529)
Debt/Equity		−0.039	−0.158***	−0.123	−0.065
		(−0.280)	(−3.552)	(−0.661)	(−0.748)
Observations		618	683	618	618
Year×Country Fixed Effects		YES	YES	YES	YES
Industry Fixed Effects		YES	YES	YES	YES
Clustered SE - country level		YES	YES	YES	YES
Missing Value Controls		NO	NO	NO	YES
R-squared		0.109	0.093	0.111	0.119

Notes. This table provides results of OLS regressions with alternative fixed effects analyzing the determinants of stock price reactions for gig economy facilitators to the WSRR events in the US and EU. The dependent variable, *CAR*, is the firm-specific five-day (–2, +2) cumulative abnormal return for each event, expressed as a percentage. *Predicted impact* presents our predicted impacts of proxy variables capturing our hypotheses on the shareholder value effect of WSRR. + (−) indicates a positive (negative) predicted impact and +/− an ambiguous prediction. Column (1) contains the proxy variables capturing firms' financial flexibility. Column (2) contains the proxy variables capturing labor conditions. Column (3) combines all proxy variables. Column (4) includes binary controls for observations with missing values. Control variables include *Firm size*, *Market/Book*, and *Debt/Equity*. The controls for missing values include indicator variables which equal one when a missing value of *Labor Expenses*, *Employee-Related Controversies*, *Employee Satisfaction Score*, or *Trade Union Representation* is replaced by zero. All explanatory and control variables are measured in the fiscal year 2018. *t*-statistics reported in parentheses are based on robust standard errors clustered at the country level. Table 2 defines all the variables. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table C3. Cross-sectional event study of stock price reactions to WSRR events – Gig economy companies (using total *CAR*s as dependent variables)

	Predicted impact	(1)	(2)	(3)	(4)
ROA	(+)	0.629*		0.582**	−0.128
		(2.517)		(3.483)	(−0.856)
Current Assets	(+)	0.224		0.348*	0.268***
		(1.920)		(2.643)	(10.505)
Credit Rating	(+)	0.622*		0.741***	0.902**
		(2.634)		(9.992)	(3.567)
Interest Coverage	(+)	0.072		0.055	0.109***
		(0.939)		(0.736)	(5.436)
Dividend Payout	(+)	0.173*		0.149**	0.158***
		(2.442)		(3.402)	(4.998)
COGS Expenses	(+/−)	−10.826***		−11.083***	−6.371**
		(−13.920)		(−21.063)	(−3.322)
Labor Expenses	(−)	−30.325***		−18.538***	−43.457***
		(−7.160)		(−4.963)	(−18.198)
Employee-Related Controversies	(−)		−0.157**	−0.099	−7.458***
			(−4.427)	(−1.297)	(−9.019)
Workforce Score	(+)		0.082**	0.093***	0.095**
			(3.455)	(12.073)	(3.300)
Employee Satisfaction Score	(+)		0.130	0.303***	0.411**
			(1.512)	(5.381)	(3.617)
Trade Union Representation	(+)		0.035	0.040	−0.019
			(0.653)	(1.113)	(−0.715)
Labor Intensity	(+/−)	−3.774***	−5.907***	−3.802***	−1.831***
		(−5.197)	(−21.952)	(−27.199)	(−6.027)
Firm Size		−1.040	0.361	−1.794	−2.082***
		(−0.554)	(1.144)	(−1.266)	(−63.116)
Market/Book		−0.055**	−0.048***	−0.045**	−0.012*
		(−3.224)	(−6.729)	(−3.241)	(−2.238)
Debt/Equity		3.394***	1.938***	2.867***	2.409***
		(19.379)	(6.224)	(26.535)	(27.460)
Observations		61	72	61	61
Industry Fixed Effects		YES	YES	YES	YES
Country Fixed Effects		YES	YES	YES	YES
Clustered SE - country level		YES	YES	YES	YES
Missing Value Controls		NO	NO	NO	YES
R-squared		0.763	0.686	0.790	0.850

Notes. This table provides results of OLS regressions with alternative dependent variables analyzing the determinants of stock price reactions for gig economy companies to the WSRR events in the US and EU. The dependent variable, *CAR*, is the firm-specific five-day (–2, +2) total cumulative abnormal return across 16 events, expressed as a percentage. *Predicted impact* presents our predicted impacts of proxy variables capturing our hypotheses on the shareholder value effect of WSRR. + (−) indicates a positive (negative) predicted impact and +/− an ambiguous prediction. Column (1) contains the proxy variables capturing firms' financial flexibility. Column (2) contains the proxy variables capturing labor conditions. Column (3) combines all proxy variables. Column (4) includes binary controls for observations with missing values. Control variables include *Firm size*, *Market/Book*, and *Debt/Equity*. The controls for missing values include indicator variables which equal one when a missing value of *Labor Expenses*, *Employee-Related Controversies*, *Employee Satisfaction Score*, or *Trade Union Representation* is replaced by zero. All explanatory and control variables are measured in the fiscal year 2018. *t*-statistics reported in parentheses are based on robust standard errors clustered at the country level. Table 2 defines all the variables. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table C4. Cross-sectional event study of stock price reactions to WSRR events – Gig economy facilitators (using total *CAR*s as dependent variables)

	Predicted impact	(1)	(2)	(3)	(4)
ROA	(+)	1.413***		1.270***	1.212***
		(36.570)		(24.448)	(5.613)
Current Assets	(+)	−0.115		−0.031	−0.057
		(−0.442)		(−0.214)	(−0.596)
Credit Rating	(+)	1.425		1.317	1.289
		(1.921)		(1.633)	(1.646)
Interest Coverage	(+)	0.083		0.080	0.072
		(1.167)		(1.815)	(0.662)
Dividend Payout	(+)	0.040		0.120	−0.029
		(0.162)		(0.748)	(−0.206)
COGS Expenses	(+/−)	−13.195*		−15.321***	−15.220**
		(−2.544)		(−5.473)	(−4.045)
Employee-Related Controversies	(−)		−0.270	0.000	−2.268
			(−1.211)	(0.001)	(−1.046)
Workforce Score	(+)		0.049	−0.005	0.039
			(0.905)	(−0.111)	(0.625)
Employee Satisfaction Score	(+)		0.226*	0.218**	0.141
			(2.066)	(4.225)	(0.571)
Trade Union Representation	(+)		0.317***	0.027	0.035
			(4.231)	(0.216)	(0.140)
Firm Size		−0.284	0.792	−1.594**	−1.939***
		(−0.391)	(0.366)	(−3.587)	(−6.454)
Market/Book		−0.922	−0.102	−0.804	−0.822*
		(−1.816)	(−1.721)	(−1.874)	(−2.208)
Debt/Equity		−1.008	−0.797	−1.172	−1.091
		(−0.329)	(−0.456)	(−0.509)	(−0.843)
Observations		42	46	42	42
Industry Fixed Effects		YES	YES	YES	YES
Country Fixed Effects		YES	YES	YES	YES
Clustered SE - country level		YES	YES	YES	YES
Missing Value Controls		NO	NO	NO	YES
R-squared		0.793	0.554	0.810	0.829

Notes. This table provides results of OLS regressions with alternative dependent variables analyzing the determinants of stock price reactions for gig economy facilitators to the WSRR events in the US and EU. The dependent variable, *CAR*, is the firm-specific five-day (–2, +2) total cumulative abnormal return across 16 events, expressed as a percentage. *Predicted impact* presents our predicted impacts of proxy variables capturing our hypotheses on the shareholder value effect of WSRR. + (−) indicates a positive (negative) predicted impact and +/− an ambiguous prediction. Column (1) contains the proxy variables capturing firms' financial flexibility. Column (2) contains the proxy variables capturing labor conditions. Column (3) combines all proxy variables. Column (4) includes binary controls for observations with missing values. Control variables include *Firm size*, *Market/Book*, and *Debt/Equity*. The controls for missing values include indicator variables which equal one when a missing value of *Labor Expenses*, *Employee-Related Controversies*, *Employee Satisfaction Score*, or *Trade Union Representation* is replaced by zero. All explanatory and control variables are measured in the fiscal year 2018. *t*-statistics reported in parentheses are based on robust standard errors clustered at the country level. Table 2 defines all the variables. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table C5. Cross-sectional event study of stock price reactions to WSRR events – Gig economy companies (using a rolling window in which explanatory variables are for the annual periods just preceding the years of the corresponding events)

	Predicted impact	(1)	(2)	(3)	(4)
ROA	(+)	0.096**		0.090***	0.065**
		(3.026)		(4.036)	(2.449)
Current Assets	(+)	0.017***		0.023***	0.017*
		(3.189)		(4.596)	(1.944)
Credit Rating	(+)	0.032***		0.059***	0.052***
		(5.740)		(9.851)	(6.298)
Interest Coverage	(+)	0.000		−0.001	0.001
		(0.041)		(−0.268)	(0.375)
Dividend Payout	(+)	0.001***		0.001***	0.001***
		(4.259)		(4.335)	(4.695)
COGS Expenses	(+/−)	−0.982**		−0.998***	−0.762*
		(−2.590)		(−3.431)	(−1.847)
Labor Expenses	(−)	−2.428***		−1.872***	−1.025***
		(−8.040)		(−4.335)	(−4.450)
Employee-Related Controversies	(−)		0.012	0.015	−0.831***
			(1.174)	(1.422)	(−19.576)
Workforce Score	(+)		0.007	0.006	0.006
			(0.803)	(0.607)	(0.714)
Employee Satisfaction Score	(+)		0.012**	0.020***	0.033***
			(2.439)	(3.792)	(4.896)
Trade Union Representation	(+)		0.008**	0.013**	0.015***
			(2.511)	(2.272)	(3.401)
Labor Intensity	(+/−)	−12.328	−17.556**	9.071	30.838
		(−0.314)	(−2.970)	(0.176)	(1.125)
Firm Size		0.011	0.194***	0.029	−0.053
		(0.185)	(5.595)	(0.462)	(−0.765)
Market/Book		−0.005***	−0.006***	−0.003**	−0.002
		(−8.236)	(−4.124)	(−2.351)	(−1.153)
Debt/Equity		0.086*	0.169***	0.079**	0.096**
		(1.978)	(6.804)	(2.330)	(2.772)
Observations		1,080	1,315	1,080	1,080
Year Fixed Effects		YES	YES	YES	YES
Industry Fixed Effects		YES	YES	YES	YES
Country Fixed Effects		YES	YES	YES	YES
Clustered SE - country level		YES	YES	YES	YES
Missing Value Controls		NO	NO	NO	YES
R-squared		0.065	0.063	0.072	0.098

Notes. This table provides results of OLS regressions analyzing the determinants of stock price reactions for gig economy companies to the WSRR events in the US and EU, using the rolling window in which the explanatory variables are for the annual periods just preceding the years of the corresponding events. The dependent variable, *CAR*, is the firm-specific five-day (–2, +2) cumulative abnormal return for each event, expressed as a percentage. *Predicted impact* presents our predicted impacts of proxy variables capturing our hypotheses on the shareholder value effect of WSRR. + (−) indicates a positive (negative) predicted impact and +/− an ambiguous prediction. Column (1) contains the proxy variables capturing firms' financial flexibility. Column (2) contains the proxy variables capturing labor conditions. Column (3) combines all proxy variables. Column (4) includes binary controls for observations with missing values. Control variables include *Firm size*, *Market/Book*, and *Debt/Equity*. The controls for missing values include indicator variables which equal one when a missing value of *Labor Expenses*, *Employee-Related Controversies*, *Employee Satisfaction Score*, or *Trade Union Representation* is replaced by zero. All explanatory and control variables are based on the annual periods preceding the years of the corresponding events. *t*-statistics reported in parentheses are based on robust standard errors clustered at the country level. Table 2 defines all the variables. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table C6. Placebo test of cross-sectional event study of stock price reactions to WSRR events - Gig economy companies

	Predicted impact	(1)	(2)	(3)	(4)
ROA	(+)	−0.210		−0.248	−0.448
		(−0.022)		(−0.025)	(−0.043)
Current Assets	(+)	−0.000		−0.000	0.000
		(−0.006)		(−0.012)	(0.006)
Credit Rating	(+)	0.011		0.014	0.009
		(0.143)		(0.156)	(0.107)
Interest Coverage	(+)	−0.000		0.000	0.000
		(−0.024)		(0.003)	(0.029)
Dividend Payout	(+)	0.002		0.001	0.002
		(0.106)		(0.098)	(0.123)
COGS Expenses	(+/−)	0.030		−0.003	−0.021
		(0.034)		(−0.004)	(−0.018)
Labor Expenses	(−)	−0.241		−0.359	−0.451
		(−0.060)		(−0.083)	(−0.106)
Employee-Related Controversies	(−)		0.003	0.002	−0.109
			(0.073)	(0.072)	(−0.081)
Workforce Score	(+)		0.001	−0.002	−0.001
			(0.062)	(−0.098)	(−0.076)
Employee Satisfaction Score	(+)		0.000	0.001	0.004
			(0.025)	(0.055)	(0.126)
Trade Union Representation	(+)		0.001	0.001	0.000
			(0.101)	(0.075)	(0.011)
Labor Intensity	(+/−)	−8.724	−8.615	−8.533	−3.738
		(−0.094)	(−0.114)	(−0.083)	(−0.034)
Firm Size		−0.052	−0.012	−0.042	−0.017
		(−0.115)	(−0.045)	(−0.097)	(−0.016)
Market/Book		0.000	0.001	0.000	−5.990
		(0.025)	(0.145)	(0.059)	(−0.083)
Debt/Equity		0.036	−0.021	0.035	0.298
		(0.169)	(−0.072)	(0.144)	(0.115)
Observations		67,793	83,727	67,793	67,793
Year Fixed Effects		YES	YES	YES	YES
Industry Fixed Effects		YES	YES	YES	YES
Country Fixed Effects		YES	YES	YES	YES
Clustered SE - country level		YES	YES	YES	YES
Missing Value Controls		NO	NO	NO	YES

Notes. This table provides results of the placebo test analyzing the determinants of stock price reactions for gig economy companies to the WSRR events in the US and EU. Following Armstrong et al. (2010) and Grewal et al. (2019), we randomly select 16 dates from 2018 to 2022, calculate their *CAR*s, and conduct cross-sectional regression for each company, and repeat the process 500 times. The aim of this placebo test is to examine whether the boundary mechanisms of financial flexibility and labor conditions still hold for nonevent date stock price reactions. The dependent variable, *CAR*, is the firm-specific five-day (–2, +2) cumulative abnormal return for each date, expressed as a percentage. *Predicted impact* presents our predicted impacts of proxy variables capturing our hypotheses on the shareholder value effect of WSRR. + (−) indicates a positive (negative) predicted impact and +/− an ambiguous prediction. The table presents the mean, standard deviation, and significance level of the distribution of coefficient estimation obtained from 500 repeated samplings. Column (1) contains the proxy variables capturing firms' financial flexibility. Column (2) contains the proxy variables capturing labor conditions. Column (3) combines all proxy variables. Column (4) includes binary controls for observations with missing values. Control variables include *Firm size*, *Market/Book*, and *Debt/Equity*. The controls for missing values include indicator variables which equal one when a missing value of *Labor Expenses*, *Employee-Related Controversies*, *Employee Satisfaction Score*, or *Trade Union Representation* is replaced by zero. All explanatory and control variables are measured in the fiscal year 2018. *t*-statistics reported in parentheses are based on robust standard

errors clustered at the country level. Table 2 defines all the variables. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table C7. Cross-sectional event study of stock price reactions to WSRR events – Complete cases analysis (using observations with no-missing values)

	Predicted impact	(1)	(2)	(3)
Panel A: Gig economy companies				
Labor Expenses	(−)	−2.353***		
		(−4.587)		
Employee-Related Controversies	(−)		−0.536**	
			(−2.577)	
Workforce Score	(+)			0.005***
				(3.820)
Observations		557	1,099	1,259
Year Fixed Effects		YES	YES	YES
Industry Fixed Effects		YES	YES	YES
Country Fixed Effects		YES	YES	YES
Clustered SE - country level		YES	YES	YES
Control Variables		YES	YES	YES
R-squared		0.067	0.057	0.050
Panel B: Gig economy facilitators				
Labor Expenses	(−)	−1.803		
		(−0.667)		
Employee-Related Controversies	(−)		−0.484***	
			(−6.905)	
Workforce Score	(+)			0.010***
				(11.547)
Observations		336	606	686
Year Fixed Effects		YES	YES	YES
Industry Fixed Effects		YES	YES	YES
Country Fixed Effects		YES	YES	YES
Clustered SE - country level		YES	YES	YES
Control Variables		YES	YES	YES
R-squared		0.046	0.075	0.055

Notes. This table provides results of OLS regressions analyzing the impact of *Labor Expenses*, *Employee-Related Controversies*, and *Workforce Score* on stock price reactions for gig economy companies and gig economy facilitators to the WSRR events in the US and EU, only using observations of these variables without missing values. The dependent variable, *CAR*, is the firm-specific five-day (–2, +2) cumulative abnormal return for each event, expressed as a percentage. *Predicted impact* presents our predicted impacts of proxy variables capturing our hypotheses on the shareholder value effect of WSRR. + (−) indicates a positive (negative) predicted impact and +/− an ambiguous prediction. *Panel A* reports the regression results for gig economy companies. *Panel B* reports the regression results for gig economy facilitators. Control variables include *Firm size*, *Market/Book*, and *Debt/Equity*. All explanatory and control variables are measured in the fiscal year 2018. *t*-statistics reported in parentheses are based on robust standard errors clustered at the country level. Table 2 defines all the variables. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Appendix D: Extended sample of gig economy companies and facilitators

Table D1. Stock price reactions to WSRR events
(using the extended sample which combines firms collected from Factiva articles and holdings of SoFi Gig Economy ETF)

Window	Mean	Median	*t*	Adj-Patell	Std-CrossSec	Gen-Sign
Panel A: WSRR events						
Gig economy ecosystem (*N* = 3,311)						
[−1,1]	−0.47%	0.00%	−3.294***	−1.447	−2.952***	−0.110
[−2,2]	−0.89%	−0.23%	−5.115***	−3.677***	−6.266***	−2.389**
[−5,5]	−1.07%	−0.36%	−4.119***	−3.761***	−3.925***	−2.548**
Gig economy companies (*N* = 1,886)						
[−1,1]	−0.47%	0.02%	−2.522**	−1.321	−2.000**	0.105
[−2,2]	−0.85%	−0.21%	−3.667***	−3.477***	−4.534***	−1.957*
[−5,5]	−1.14%	−0.29%	−3.290***	−4.561***	−3.105***	−1.866*
Gig economy facilitators (*N* = 1,425)						
[−1,1]	−0.52%	−0.12%	−2.368**	−1.297	−2.567**	−1.001
[−2,2]	−1.03%	−0.35%	−3.859***	−2.893***	−4.577***	−1.955*
[−5,5]	−1.04%	−0.43%	−2.629***	−1.991**	−2.613***	−1.554
Panel B: All events						
Gig economy ecosystem (*N* = 4,107)						
[−1,1]	−0.36%	−0.01%	−2.819***	−1.102	−2.307**	−0.337
[−2,2]	−0.73%	−0.21%	−4.662***	−3.071***	−5.398***	−2.382**
[−5,5]	−0.94%	−0.27%	−4.021***	−3.798***	−4.197***	−2.368**
Gig economy companies (*N* = 2,341)						
[−1,1]	−0.43%	−0.06%	−2.552**	−1.405	−2.108**	−0.654
[−2,2]	−0.79%	−0.23%	−3.795***	−3.338***	−4.337***	−2.514**
[−5,5]	−1.06%	−0.33%	−3.409***	−4.550***	−3.282***	−2.309**
Gig economy facilitators (*N* = 1,766)						
[−1,1]	−0.31%	−0.02%	−1.617	−0.714	−1.492	−0.451
[−2,2]	−0.72%	−0.21%	−3.021***	−2.118**	−3.553***	−1.120
[−5,5]	−0.80%	−0.15%	−2.249**	−2.070**	−2.751***	−0.838

Notes. This table provides the results of a univariate event study of stock price reactions to the WSRR events and all the events (including events increasing or decreasing the likelihood of WSRR adoption) in the US and EU, using the extended sample combining both firms collected from Factiva articles and firms that have historically belonged to the SoFi Gig Economy ETF. *Panel A* reports stock price reactions for all companies belonging to the gig economy ecosystem (including gig economy companies and gig economy facilitators), gig economy companies, and gig economy facilitators to the WSRR events. *Panel B* reports stock price reactions for all companies belonging to the gig economy ecosystem (including gig economy companies and gig economy facilitators), gig economy companies, and gig economy facilitators to all events. Columns *Mean* and *Median* report the means and medians of cumulative abnormal returns (*CAR*). We report the statistical significance of *CAR* with a *t*-test, Adjusted Patell test, Standardized cross-sectional test, and Generalized sign test. *N* equals the number of observations. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table D2. Cross-sectional event study of stock price reactions to WSRR events – Gig economy companies (using the extended sample which combines firms collected from Factiva articles and holdings of SoFi Gig Economy ETF)

	Predicted impact	(1)	(2)	(3)	(4)
ROA	(+)	0.058***		0.056***	0.018**
		(15.068)		(16.082)	(2.826)
Current Assets	(+)	0.001		0.006**	−0.003
		(0.442)		(2.422)	(−1.082)
Credit Rating	(+)	0.031***		0.033***	0.054**
		(5.416)		(4.814)	(2.712)
Interest Coverage	(+)	0.003		0.002	0.004***
		(0.709)		(0.398)	(3.471)
Dividend Payout	(+)	0.007***		0.004*	0.004*
		(4.584)		(2.130)	(2.057)
COGS Expenses	(+/−)	−0.314***		−0.280***	0.138
		(−5.243)		(−4.192)	(0.851)
Labor Expenses	(−)	−1.560***		−0.675***	−1.586***
		(−9.492)		(−4.511)	(−4.459)
Employee-Related Controversies	(−)		−0.005*	−0.002	−0.488***
			(−2.201)	(−0.761)	(−12.376)
Workforce Score	(+)		0.011***	0.010***	0.009***
			(5.960)	(7.163)	(4.217)
Employee Satisfaction Score	(+)		0.008	0.014***	0.003
			(1.589)	(6.026)	(1.346)
Trade Union Representation	(+)		0.002	0.000	−0.005
			(0.992)	(0.174)	(−1.815)
Labor Intensity	(+/−)	−0.135***	−0.298***	−0.147***	−0.009
		(−8.296)	(−31.875)	(−16.734)	(−0.801)
Firm Size		0.018	0.047***	−0.051	−0.087***
		(0.317)	(4.432)	(−1.145)	(−10.791)
Market/Book		−0.003***	−0.002***	−0.002***	−0.000
		(−3.999)	(−4.440)	(−14.375)	(−0.309)
Debt/Equity		0.133***	0.063**	0.082***	0.079***
		(13.905)	(3.038)	(6.871)	(18.936)
Observations		1,227	1,386	1,227	1,227
Year Fixed Effects		YES	YES	YES	YES
Industry Fixed Effects		YES	YES	YES	YES
Country Fixed Effects		YES	YES	YES	YES
Clustered SE - country level		YES	YES	YES	YES
Missing Value Controls		NO	NO	NO	YES
R-squared		0.050	0.048	0.051	0.054

Notes. This table provides results of OLS regressions analyzing the determinants of stock price reactions for gig economy companies to the WSRR events in the US and EU, using the extended sample combining firms collected from Factiva articles and historic holdings of SoFi Gig Economy ETF. The dependent variable, *CAR*, is the firm-specific five-day (–2, +2) cumulative abnormal return for each event, expressed as a percentage. *Predicted impact* presents our predicted impacts of proxy variables capturing our hypotheses on the shareholder value effect of WSRR. + (−) indicates a positive (negative) predicted impact and +/− an ambiguous prediction. Column (1) contains the proxy variables capturing firms' financial flexibility. Column (2) contains the proxy variables capturing labor conditions. Column (3) combines all proxy variables. Column (4) includes binary controls for observations with missing values. Control variables include *Firm size*, *Market/Book*, and *Debt/Equity*. The controls for missing values include indicator variables which equal one when a missing value of *Labor Expenses*, *Employee-Related Controversies*, *Employee Satisfaction Score*, or *Trade Union Representation* is replaced by zero. All explanatory and control variables are measured in the fiscal year 2018. *t*-statistics reported in parentheses are based on robust standard errors clustered at the country level. Table 2 defines all the variables. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table D3. Cross-sectional event study of stock price reactions to WSRR events – Gig economy facilitators (using the extended sample which combines firms collected from Factiva articles and holdings of SoFi Gig Economy ETF)

	Predicted impact	(1)	(2)	(3)	(4)
ROA	(+)	0.044***		0.046***	0.047***
		(3.977)		(10.263)	(4.961)
Current Assets	(+)	0.008		0.007	0.002
		(1.802)		(1.326)	(0.767)
Credit Rating	(+)	0.061		0.047	0.067
		(1.258)		(0.733)	(1.592)
Interest Coverage	(+)	0.001**		0.001	0.001
		(2.607)		(1.451)	(1.272)
Dividend Payout	(+)	0.021*		0.017	−0.011
		(2.195)		(1.805)	(−0.914)
COGS Expenses	(+/−)	−0.890***		−0.896***	−0.666***
		(−4.267)		(−3.946)	(−8.245)
Employee-Related Controversies	(−)		−0.015**	0.000	−0.580***
			(−2.825)	(0.160)	(−4.403)
Workforce Score	(+)		0.016***	0.012**	0.022***
			(10.714)	(3.461)	(5.694)
Employee Satisfaction Score	(+)		0.001	−0.003	−0.008
			(0.240)	(−0.224)	(−1.786)
Trade Union Representation	(+)		0.017**	0.003	−0.012
			(2.714)	(0.471)	(−0.697)
Firm Size		−0.185**	−0.069	−0.226*	−0.222***
		(−3.411)	(−1.303)	(−2.339)	(−4.149)
Market/Book		−0.012	−0.003	−0.020	−0.060***
		(−0.950)	(−1.021)	(−0.738)	(−5.203)
Debt/Equity		0.043	0.084	0.089	0.166
		(0.259)	(1.075)	(0.441)	(1.675)
Observations		860	987	860	860
Year Fixed Effects		YES	YES	YES	YES
Industry Fixed Effects		YES	YES	YES	YES
Country Fixed Effects		YES	YES	YES	YES
Clustered SE - country level		YES	YES	YES	YES
Missing Value Controls		NO	NO	NO	YES
R-squared		0.046	0.040	0.047	0.055

Notes. This table provides results of OLS regressions analyzing the determinants of stock price reactions for gig economy facilitators to the WSRR events in the US and EU, using the extended sample combining firms collected from Factiva articles and historic holdings of SoFi Gig Economy ETF. The dependent variable, *CAR*, is the firm-specific five-day (–2, +2) cumulative abnormal return for each event, expressed as a percentage. *Predicted impact* presents our predicted impacts of proxy variables capturing our hypotheses on the shareholder value effect of WSRR. + (−) indicates a positive (negative) predicted impact and +/− an ambiguous prediction. Column (1) contains the proxy variables capturing firms' financial flexibility. Column (2) contains the proxy variables capturing labor conditions. Column (3) combines all proxy variables. Column (4) includes binary controls for observations with missing values. Control variables include *Firm size*, *Market/Book*, and *Debt/Equity*. The controls for missing values include indicator variables which equal one when a missing value of *Labor Expenses*, *Employee-Related Controversies*, *Employee Satisfaction Score*, or *Trade Union Representation* is replaced by zero. All explanatory and control variables are measured in the fiscal year 2018. *t*-statistics reported in parentheses are based on robust standard errors clustered at the country level. Table 2 defines all the variables. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table D4. Real impact of WSRR on gig economy companies

(using the extended sample which combines firms collected from Factiva articles and holdings of SoFi Gig Economy ETF)

	(1)	(2)	(3)	(4)
Variables	ROA	Current Assets	Credit Rating	Debt/Equity
Predicted change	(−)	(−)	(−)	(+)
Treated×Post	−1.792	0.015	−0.501	0.419**
	(−0.551)	(1.309)	(−1.295)	(2.186)
Observations	1,087	1,087	1,087	1,087
Controls	YES	YES	YES	YES
Year×Country Fixed Effects	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES
Clustered SE - firm level	YES	YES	YES	YES
Parallel Trend Test	FAIL	FAIL	FAIL	PASS
R-squared	0.612	0.943	0.913	0.823

	(5)	(6)	(7)	(8)	(9)
Variables	Labor Expenses	Number of Employees	R&D Expenses	CAPEX	COGS Expenses
Predicted change	(+)	(+)	(+/−)	(+/−)	(+/−)
Treated×Post	0.007**	0.193***	0.017	−0.001	0.023
	(2.073)	(3.300)	(0.826)	(−0.147)	(0.842)
Observations	1,087	1,071	1,087	1,087	1,087
Controls	YES	YES	YES	YES	YES
Year×Country Fixed Effects	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES
Clustered SE - firm level	YES	YES	YES	YES	YES
Parallel Trend Test	PASS	PASS	FAIL	FAIL	FAIL
R-squared	0.972	0.975	0.621	0.803	0.962

	(10)	(11)	(12)	(13)
Variables	Employee-Related Controversies	Workforce Score	Employee Satisfaction Score	Trade Union Representation
Predicted change	(−)	(+)	(+)	(+)
Treated×Post	−3.302**	−2.116	1.341	0.467
	(−2.463)	(−0.789)	(0.510)	(0.043)
Observations	1,087	1,087	1,087	1,087
Controls	YES	YES	YES	YES
Year×Country Fixed Effects	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES
Clustered SE - firm level	YES	YES	YES	YES
Parallel Trend Test	PASS	FAIL	FAIL	FAIL
R-squared	0.754	0.842	0.637	0.862

Notes. This table reports the real firm outcomes of WSRR, using the extended sample combining firms collected from Factiva articles and historic holdings of SoFi Gig Economy ETF. *Treated×Post* equals one if the firm is identified as gig economy company (*Treated* = 1) and affected by WSRR (*Post* = 1). *Predicted change* presents our predicted changes of proxy variables capturing our hypotheses on the financial position and labor condition outcomes of WSRR. + (−) indicates a positive (negative) predicted change and +/− an ambiguous prediction. We consider the same control variables, *Firm size*, *Market/Book*, and *Debt/Equity* as in the cross-sectional analysis of stock price reactions. *t*-statistics reported in parentheses are based on robust standard errors clustered at the firm level. All tests are two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.