

The reputation costs of tax avoidance: Evidence from Glassdoor.com employee ratings[†]

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ABSTRACT: Reputation costs are often proffered as a partial explanation of the tax avoidance under-sheltering puzzle (Weisbach 2002). Prior studies on reputation costs offer mixed evidence on whether various stakeholders (shareholders or consumers) impose reputation costs on firms and managers that avoid taxes. We extend prior studies by measuring *employee*-imposed reputation costs using employee ratings from Glassdoor.com. Moreover, we use news headlines about tax avoidance to provide a salient and plausibly exogenous proxy for tax avoidance. Using S&P 500 firms and staggered difference-in-differences specifications, we find that tax avoidance news negatively affects employee perceptions of managers and firms. In cross-sectional tests, we find that (1) firms and managers in consumer-facing industries suffer higher employee-related reputation costs from tax avoidance compared to other firms, (2) firms with employees that are likely unionized suffer lower reputation costs compared to other firms and (3) well-performing firms and their managers face lower reputation costs than other firms and managers. Overall, our results are consistent with tax avoidance imposing reputation costs on managers and firms.

Keywords: Tax avoidance, reputation costs, employee reactions, Glassdoor.com

1. Introduction

We examine whether employees impose reputation costs on firms and senior management for avoiding corporate taxes. Prior studies on tax avoidance's reputation costs suggest that various firm stakeholders react in different ways to tax avoidance, though managers themselves seem to fear the reputation costs of tax avoidance (see e.g., Hanlon and Slemrod 2009, Gallempore, Maydew and Thornock 2014, Lanis, Richardson, Liu, and McClure 2018, Chyz and Gaertner 2018, Austin and Wilson 2018, and Graham, Hanlon, Shevlin, and Shroff 2014).² To our knowledge, these prior studies do not examine whether firms' employees impose reputation costs on firms and managers for avoiding corporate taxes. Thus, we extend this prior literature by providing the first evidence that employees impose tax avoidance-induced reputation costs on both managers and firms.³

Employees are important stakeholders in firms. Recent studies suggest that employee perceptions of firms and managers affect firm value and performance. Edmans (2011) finds evidence consistent with employee satisfaction increasing firm value. He finds companies listed as one of the "100 Best Companies to Work For in America" yield positive abnormal returns across various specifications. He attributes this relation to human capital theories of employees which suggest that employees are assets to a firm and drive firm value by inventing new products or nurturing client relations and markets failing to fully price this effect. Similarly, Guiso, Sapienza, and Zingales (2017) find evidence that positive employee perceptions of managers

² These studies and their findings are discussed in more detail in section 2.

³ We separately examine tax avoidance-induced reputation costs on senior managers and the employing firm for two reasons. First, senior management sets the tenor and direction of the company's activities. Ample evidence suggests that managerial attributes influence firm tax avoidance (e.g. Dyreng, Hanlon, and Maydew 2010, Law and Mills 2017 and Koester, Shevlin, and Wangerin 2016). Thus, employees may blame senior managers for tax avoidance without blaming the firm overall. Consequently, we may identify reputation costs on managers without identifying reputation costs on firms. Second, some prior studies evaluate reputation costs on firms (e.g. Austin and Wilson 2018) while others evaluate reputation costs on managers (e.g. Chyz and Gaertner 2018). We separately examine reputation costs on managers and firms to engage with both strands of the reputation costs literature.

(measured using employee survey answers in the “Great Places to Work” survey) improve firm performance. Gartenberg, Prat, and Serafeim (2018) use the “Great Places to Work” survey to provide evidence that employee camaraderie and employee perceptions of middle management result in higher future accounting and stock market performance (measured using ROA, Tobin’s Q and stock returns). Collectively, these results are consistent with employee perceptions affecting firm value and performance.

We scrape Glassdoor.com ratings of S&P 500 to measure employees’ perceptions on senior managers and firms. Glassdoor.com provides compensation information and ratings of thousands of different employers.⁴ We collect employees’ ratings on (1) employee perceptions of management and (2) their perceptions of the firm overall. Employees are asked to rate their perceptions of senior managers and their employing firms on a scale of one to five in separate questions. The two responses capture the reputations of CEOs, management and the firm in the minds of employees. While self-reported ratings may suffer from self-reporting bias, recent evidence suggests Glassdoor.com does not suffer from a large degree of such bias because Glassdoor.com requires employees to provide ratings of their current employers before they can access ratings or compensation information of other employers (Liu, Makridis, Ouimet, and Simintzi 2018; Marinescu, Klein, Chamberlain, and Smart 2018).

Our Glassdoor.com-based measure of reputation offers two benefits. First, our measure directly captures reputation. Academics define reputation as the “shared or collective perception about a person” (Nock 1993; Jacovi, Guy, Kremer-Davidson, Porat, and Aizenbud-Reshef 2014).

⁴ A recent media report from the *Wall Street Journal* suggests that firms with poor ratings on Glassdoor.com attempt to improve their ratings by encouraging employees to provide high ratings on the site. In the context of our study, the WSJ’s findings bias against us finding a result because firms with low ratings resulting from tax avoidance news should manipulate their ratings upwards, thus limiting our ability to document negative effects. Given our robust results, this issue does not seem to threaten identification in our study.

Our measure is able to detect even minor changes in reputation that do not necessarily manifest in other measures of reputation (e.g. lower sales or CEO turnover). Second, our measure is dynamic. Specifically, our measure captures changes in the reputations of management and the firm itself using daily employee reviews. Therefore, we can analyze whether employee perceptions change in the quarter following news about their employer engaging in tax avoidance.

To measure tax avoidance, we hand-collect news from LexisNexis on the tax avoidance activities of S&P 500 firms.⁵ We form our treatment variable based on the date of the first mention of the company's tax avoidance activities. In addition, we collect the number of news mentions of the company and tax avoidance in the month following the initial news. Our tax news measure offers two major benefits. First, our measure is likely salient because employees and other stakeholders are likely exposed to the news and news about the firm's tax avoidance is likely presented in a simplified, understandable way. Second, our news-based measure of tax avoidance is plausibly exogenous because breaking news on tax avoidance is fairly unpredictable and firms are unlikely to influence the timing of negative news coverage about their tax avoidance.⁶ Our final sample spans all quarters from 2008 (Q1) to 2017 (Q4) and covers all S&P 500 firms.

We posit two directional hypotheses on the effects of tax avoidance on reputation costs. First, we hypothesize that employees perceive their *senior management team* less favorably following news about their employers' tax avoidance. Second, we hypothesize that employees

⁵ Specifically, we search for news about each S&P 500 firm and the terms "transfer pricing," "tax haven," "tax evasion" and "tax avoidance." Our search terms are based on the search terms used in Graham and Tucker (2006) and Hanlon and Slemrod (2009). Our process is further described in Section 3.

⁶ We acknowledge possible selection bias in our tax news data. As noted in Graham et al. (2014), firms with high reputation costs likely would not engage in tax avoidance and would thus not be caught. Specifically, firms highlighted by the media for avoiding taxes in our sample are firms with relatively low reputation costs. Therefore, our estimates suggest that even firms with relatively low reputation costs still suffer reputation costs following tax avoidance news and our estimates are thus a lower bound on actual reputation costs. We also note that Hanlon and Slemrod (2009) use media mentions of firms participating in tax shelters as an independent variable to examine whether shareholders respond positively or negatively to tax sheltering.

perceive their employing *firms* less favorably following news about their employers' tax avoidance. We expect negative employee perceptions following tax avoidance news for two reasons. First, most employees do not clearly benefit from lower tax payments. While low tax payments generate incremental cash flows to firms, prior literature offers mixed evidence on whether employees benefit from lower tax payments (see e.g. Harberger 1962; Auerbach 2006; Gravelle 2010; Campbell, Lee, Shevlin, and Venkat 2018).⁷ Second, employees prefer to work for socially responsible and "fair" employers (Kim, Lee, Lee and Kim 2010; Rupp, Ganapathi, Aguilera and Williams 2006; Collier and Esteban 2007; Turban and Greening 2017; Aguilera et al. 2007, Colquitt 2001). We expect that employees perceive corporate tax avoidance as unfair and socially irresponsible because it enables companies to avoid paying their "fair share." (Pegg 2017; Mikler and Elbra 2017).

Anecdotal evidence supports our hypotheses. In our Glassdoor.com data, we find several employee reviews positing tax avoidance and low tax payments as cons of working for particular employers. For example, a former Google employee suggests that a con of working for Google is that he finds it "difficult to buy into fiscal policy of not paying taxes locally." Another Google employee suggests that tax avoidance has imposed reputation costs and lists that as a con. Specifically, he/she notes that "People now associate it as much with Tax issues as with solving the world's problems." In this same spirit, an employee at Apple suggests that "Tax avoidance" is the biggest con of working at Apple. Thus, anecdotal evidence supports our assertions that tax avoidance imposes employee-related reputation costs.

⁷ Labor unions are an exception to this because labor union wages include "rents" that they receive in labor negotiations with firms, lower tax payments may benefit labor unions more than other workers because low tax payments might be "rents." We discuss this possibility further in a cross-sectional test.

We implement generalized difference-in-differences regressions to test whether employees react to tax avoidance news coverage (our approach follows Bertrand and Mullainathan 2004 and Giroud and Mueller 2011).⁸ We use a generalized difference-in-differences strategy because treatment is staggered: the news media covers different firms' tax avoidance activities in different quarters. We use two dependent variables from Glassdoor in these regressions. To test our first hypothesis, we use median employee perceptions (within each firm-quarter) of management. Second, we use median employee perceptions of their firm to determine whether firms suffer reputation costs following news revelations about the firm's tax avoidance activities.⁹

Our findings are consistent with our hypotheses. First, we find that employee perceptions of their senior management teams significantly decrease following news coverage of firms' tax avoidance activities in a baseline specification. Consistent with our second hypothesis, we find that employee perceptions of their firms significantly decrease following news coverage of firms' tax avoidance activities in a baseline specification. Both results are robust to inclusion of firm-specific controls in separate specifications. Our results are broadly consistent with tax avoidance activities highlighted in news media imposing employee-related reputation costs on senior management and firms.

In our next test, we use a more continuous measure as our treatment variable. We find results consistent with more media articles covering firms' tax avoidance inducing higher reputation costs. Next, we test for heterogeneity in employee reactions to news that their employers avoided taxes. First, we hypothesize that employees impose higher reputation costs on firms and

⁸ Generalized difference-in-differences replace the main effects of a post dummy variable and a treatment dummy variable in a traditional difference-in-differences framework with firm and time-period fixed effects. The coefficient on the interaction between the post and treatment dummies still represents the average treatment effect.

⁹ In an additional test, we demonstrate that our results are robust to using mean ratings instead of median ratings.

senior managers when the firm operates in a consumer-facing industry, compared to firms in other industries (see e.g. Hanlon and Slemrod 2009 for a similar test; Austin and Wilson 2018 find mixed results that tax avoidance results in consumer-induced reputation costs). Consumer-facing firms are possibly more susceptible to being publicly perceived and penalized for being socially irresponsible. Therefore, employees of firms in such industries are more likely to impose larger reputation costs compared to other employees. We use (1) Fama-French industry classifications and (2) 2-digit SIC codes to differentiate consumer-facing industries from other industries and find results consistent with our expectations. Second, we examine whether firms and senior managers at firms with employees that are likely (1) covered by unions and (2) members in unions suffer lower reputation costs following tax avoidance news compared to firms and managers in other industries.¹⁰ Unionized employees should receive more of the benefits of tax avoidance because unions generally bargain to split the rents of a firm (Lemieux 1998; Felix and Hines 2009). Consequently, unionized employees should react less negatively to tax avoidance news compared to other employees to the extent tax avoidance represents economic rents. We find results consistent with firms facing lower reputation costs when employees are likely unionized, but we find no such effects for managers. Next, we examine whether well-performing firms and their managers face lower reputation costs than other firms and managers. We expect that firms' performance blunts the negative effect of tax avoidance news on employee perceptions. We use buy-and-hold abnormal returns in the prior two quarters and sales margin to measure firm performance. We find results consistent with managers and firms facing lower reputation costs when the firm is performing well compared to other firms and managers.

¹⁰ Union coverage differs from union membership in that the latter captures actual union membership while the former captures the ability to join a union, but not actual participation in a union.

Next, we perform placebo tests to ensure our results are not driven by random differences or spurious trends. In an additional test, we replace our tax news variable with cash effective tax rates from financial statements to examine whether financial statement tax avoidance information is salient to employees. We find results consistent with employees failing to react to tax avoidance news in financial statements.

Our study offers several contributions. First, our study contributes to the literature on the reputation costs of tax avoidance. To our knowledge, we are the first study to examine employee-imposed reputation costs of tax avoidance news. Prior studies in this literature suggest other stakeholders react in mixed ways to tax avoidance news. While Hanlon and Slemrod (2009) find negative market reactions to tax avoidance, Lanis et al. (2018) find that corporate boards seem to reward CEO's for avoiding taxes. Chyz and Gaertner (2018) find results consistent with boards punishing CEOs who engage in too much or too little tax avoidance. Austin and Wilson (2018) find mixed evidence on consumer responses to tax avoidance while Gallemore et al. (2014) find results consistent with consumers not reacting to tax avoidance. We extend these studies by documenting that another important stakeholder – employees – react negatively to tax avoidance news.

2. Hypothesis Development

Reputation costs are an important part of the corporate tax avoidance literature. This literature identifies determinants and consequences of corporate tax avoidance as a function of the costs and benefits of tax avoidance. Generally, the literature posits that reputation costs are important an important potential cost of tax avoidance (see Shackelford and Shevlin 2001, Hanlon and Heitzman 2010, and Wilde and Wilson 2018 for reviews and further discussion). Thus, prior studies on tax avoidance partly rely on reputation costs to explain why some firms avoid more

taxes than others (i.e. the under-sheltering puzzles of Weisbach 2002 and reviewed in Hanlon and Heitzman 2010). Recent studies relying on or assuming the existence of tax avoidance-induced reputation costs include Hasan et al. (2014), Kubick, Lynch, Mayberry, and Omer (2016) and Cen, Maydew, Liandong, and Zuo (2017), among others. Thus, establishing that tax avoidance-induced reputation costs exist is important because their existence partly explains cross-sectional variation in tax avoidance.

Given the importance of reputation costs, prior studies examine whether tax avoidance affects firm and/or managerial reputations. Several prior studies examine shareholder reactions (in both the short-run and long-run) to tax sheltering and tax avoidance. Hanlon and Slemrod (2009) use an event study to document that shareholders react negatively to news about their firms' involvement in tax shelters. They interpret their results as consistent with the costs (including reputation costs) of tax sheltering outweighing the shareholder wealth benefits. Moreover, they find more negative returns in retail firms compared to other firms, consistent with firms with marginally higher reputation costs facing stronger negative reactions to tax sheltering. On the other hand, Gallemore et al. (2014) find that the short-run effect documented in Hanlon and Slemrod (2009) reverses within 30 days. They interpret their results as consistent with shareholders not imposing reputation costs on firms.

Other studies examine whether other stakeholders react negatively to tax avoidance. Gallemore et al. (2014) find little evidence that consumers respond negatively to firms' tax shelter news using both sales and sales growth to measure consumer reactions. They interpret their results as consumers imposing minimal reputation costs on firms for avoiding taxes. Similarly, Austin and Wilson (2018) find mixed evidence that firms with strong consumer brands engage in less tax avoidance. They argue that firms with strong consumer brands are expected to engage in little tax

avoidance because they have the most to lose from negative publicity regarding their tax avoidance. Dyreng et al. (2015) use publicity of firms' international tax avoidance to document that firms reduce tax avoidance activities in response to public pressure.

Chyz and Gaertner (2018) and Lanis et al. (2018) examine whether boards respond negatively to tax avoidance. Chyz and Gaertner (2018) hypothesize that “too much” or “too little” tax avoidance (relative to industry peers) contributes to boards' decisions to fire CEOs. By contrast, Lanis et al. (2018) find that CEOs are rewarded for tax avoidance with increased outside board seats. They interpret their results as consistent with tax avoidance enhancing CEO reputations. Gallemore et al. (2014) find no evidence that tax sheltering increases CEO turnover. They interpret their results as consistent with tax avoidance imposing little or no reputation costs on CEOs. Collectively, these studies examine whether shareholders, consumers and/or corporate boards impose reputation costs for corporate tax avoidance. Graham et al. (2014) survey tax executives themselves and find that around 70% agree that their firms' reputations weigh on their tax planning choices. To our knowledge, prior studies do not examine whether *employees* impose reputation costs on firms or managers. Thus, our study extends the reputation costs literature by providing evidence that employees impose reputation costs on firms and managers for avoiding corporate taxes.

We examine employee-induced reputation costs because employees are major stakeholders in firms and their perceptions of firms and senior management are important determinants of firm success. For example, Guiso, Sapienza, and Zingales (2017) find that firm performance is increasing in employee perceptions of managers as trustworthy and ethical. Edmans (2011) finds that stocks of firms with satisfied employees experience abnormal returns in future periods. Similarly, Gartenberg, Prat, and Serafeim (2018) find that firms in which employees believe in the

purpose of the firm have stronger accounting and stock market performance. Thus, employee perceptions of managers and firms matters for organizational success.

We collect employee perceptions on senior managers and firms from Glassdoor.com. Prior studies find that Glassdoor.com ratings are informative about firms and managers. Ji, Rozenbaum, and Welch (2017) find that employee perceptions of their employers and managers predict financial misreporting. They attribute this relation to employee perceptions representing corporate culture. Thus, poor perceptions imply a “boiler room” culture that leads to excessive financial reporting risk. Luo, Zhou, and Shon (2016) find that employee perceptions (measured using textual analysis of employee reviews from Glasdoor.com) are positively associated with firm performance (measured using Tobin’s Q). Similarly, Sheng (2019) finds results consistent with Glassdoor.com employee ratings on firms’ business outlook predicting future ROA and returns. Hales, Moon, and Swenson (2018) and Huang, Li, and Markov (2019) also find results consistent with Glassdoor.com employee ratings on business outlook predicting earnings surprises and other income statement information. Makridis and Zhou (2018) use changes in employee ratings of firms, managers and other variables as a measure of reputation costs (as we do). Their findings are consistent with employees reacting negatively to accounting fraud and imposing reputation costs. Taken together, these studies demonstrate that poor Glassdoor.com employee lead to poor firm performance and poor employee perceptions of firms and managers.

We first hypothesize that employees impose reputation costs on senior management following news that their employers avoided taxes. We define reputation costs as changes in perceptions of a person or entity, consistent with prior studies in the social sciences (Nock 1993; Jacovi et al. 2014). Prior studies offer differing results on the reputation costs that various stakeholders impose on managers for corporate tax avoidance. Gallemore et al. (2014) find no

reputation costs to managers when their firms are caught engaging in a tax shelter. They measure CEO reputation costs using CEO turnover. By contrast, Chyz and Gaertner (2018) find that CEOs at firms engaging in too little or too much tax avoidance are more likely to experience turnover compared to firms engaging in median/modal levels of tax avoidance. Lanis et al. (2018) document that high tax avoidance is associated with more independent director seats for CEOs. They interpret their results as consistent with CEO reputations increasing due to tax avoidance.

We hypothesize that employees impose reputation costs on senior managers for corporate tax avoidance for two reasons. First, employees do not clearly benefit from lower tax payments. Several studies on the incidence of the corporate income tax suggest that employees do not benefit from lower tax payments. In pioneering work, Harberger (1962) posits that shareholders bear the incidence of the corporate income tax. Recent studies largely confirm this finding (see e.g. Auerbach 2006 and Gravelle 2010 but see Fuest, Peigl, and Siegloch 2018 for contrary evidence). A 2018 working paper even suggests that corporate income tax rate cuts harm rank-and-file employees by exacerbating income inequality (Nallareddy, Rouen, and Serrato 2018). Thus, the weight of the evidence is consistent with lower tax payments providing little benefit to employees. Second, employees likely perceive corporate tax avoidance as unfair and socially irresponsible. Anecdotal evidence suggests that tax avoidance is publicly perceived as inequitable and socially irresponsible (Rupp et al. 2006; Pegg 2017; Mikler and Elbra 2017). We expect employees to share that perception because they are exposed to the same information and influences as the public. Thus, they should react negatively to tax avoidance news because employees generally value fairness and social responsibility (Colquitt 2001; Rupp et al. 2006). We expect employees to perceive senior management as directing firm operations, including tax avoidance. Thus, we

expect employees to fault senior management for tax avoidance. Therefore, our first hypothesis is as follows:

H1: Employee ratings of senior management are negatively related to news about firms' tax avoidance activities.

Second, we hypothesize that employees perceive firms more negatively following tax avoidance news. Prior studies' conclusions on firms' reputation costs vary depending on the stakeholder imposing the reputation costs. Hanlon and Slemrod (2009) find some evidence of reputation costs using stock returns around tax shelter news, especially when examining retail firms compared to other firms. Gallemore et al. (2014) find no firm reputation costs from tax sheltering activities. They find that the negative market reactions to tax shelter news in Hanlon and Slemrod (2009) reverse within 30 days. In separate tests, they use financial statement information and placement on Forbes' "Most Admired Companies List" to measure reputation costs and find little evidence of firm-level reputation costs due to firms' tax shelter activity. Graham et al. (2014) survey managers who posit that the reputation costs of firms are highly important to managers' tax planning decisions. We expect employees' perceptions about tax avoiding firms to decrease following tax avoidance news because they do not benefit from tax avoidance and they perceive tax avoidance as unfair and socially irresponsible. Thus, our second hypothesis is as follows:

H2: Employee ratings of their employing firms are negatively related to news about these firms' tax avoidance activities.

We separately examine the reputation costs on managers and firms for two reasons. First, employees may attribute the negative consequences of corporate tax avoidance to managers but not firms. Prior studies provide evidence that managerial attributes influence corporate tax

avoidance. Dyreng et al. (2010) find evidence that corporate tax avoidance varies with CEO changes. Koester et al. (2016) find results consistent with corporate tax avoidance increasing in managerial ability. Law and Mills (2017) find results consistent with military veteran CEOs avoiding less taxes than peers. Thus, employees may perceive CEOs/managers as responsible for tax avoidance without blaming their employing firms. Second, prior studies on the reputation costs of tax avoidance separately examine manager and firm reputation costs. For example, Chyz and Gaertner (2018) and Lanis et al. (2018) focus on CEO reputation costs, while Austin and Wilson (2018) focus on firm reputation costs. Gallemore et al. (2014) study the reputation costs of both firms and managers but do so in separate tests. We study reputation costs on both managers and firms to contribute to both strands of the literature on the reputation costs of tax avoidance.

3. Data, Variables and Research Design

3.1. Data, Variables and Sample

We incorporate data from three sources. First, we collect data on employee perceptions of their employing firms and senior management from Glassdoor.com. Glassdoor.com is a website that allows employees to anonymously provide their perceptions of the firm, senior management and various other aspects of working for a firm. However, recent experimental evidence suggests that offering incentives mitigates such bias (Marinescu et al. 2018). In the context of Glassdoor.com, employees must provide a review of their company before browsing job listings and compensation information. Moreover, Liu et al. (2018) document that Glassdoor.com reviewers' wages match the wages of workers in major metropolitan areas. Thus, some evidence suggests Glassdoor.com ratings do not suffer from self-reporting bias.

We collect all daily ratings for the firms in the 2012 S&P 500. We are unable to identify firm information for 5 of the firms in the S&P 500 on Glassdoor and thus retain 495 of the 500

firms in the S&P500 in our sample. Our final sample spans all quarters from 2008 (Q1) to 2017 (Q4) and covers all S&P 500 firms. We focus our collection efforts on employee ratings of their firm and of senior management. We then use the median rating across all employee ratings in a given quarter, resulting in two variables (*SeniorMgmt* and *Firm*). Both variables range from 1 (the lowest rating) to 5. We use these measures to proxy for the reputations of senior managers and firms to employees. Decreases in ratings imply reputation costs.

Our ratings measures offer several advantages. First, they directly measure reputation costs. As a construct, reputation is measured as the perception of a person or entity (Nock 1993; Chun 2005). Thus, if employees impose reputation costs on senior managers for avoiding taxes, their perceptions of these managers should fall. Second, our measures are collected at the individual level on a daily basis. In other words, they are not aggregated and are not sticky. Consequently, we are able to measure changes in employee ratings following an event. Thus, our measures of reputation costs are appropriate for our research question and design.

To measure tax avoidance, we hand-collect data on news coverage of S&P 500 firms' tax avoidance activities. We searched for news about "tax evasion," "tax avoidance," "transfer pricing," "tax haven" and each company's name in LexisNexis.¹¹ Our chosen terms represent a tradeoff between breadth and comprehensiveness. For example, we do not include "taxes" as a search term because it results in too many irrelevant articles (e.g., coverage of sales taxes). The LexisNexis search engine covers global news media outlets. We identify the first, salient mention of a firm's tax avoidance activities covered in the media.¹² We did not impose any further

¹¹ We select our search terms based on the search terms used in Graham and Tucker (2006) and Hanlon and Slemrod (2009). We omit certain terms because they are too specific (e.g. "sham transaction doctrine") and add "tax avoidance" because we expect that employees react to news about "tax avoidance."

¹² We rely on the first mention of firms' tax avoidance because hand-collection of tax news for all periods in our sample is prohibitively onerous. For example, Apple's tax avoidance is covered nearly every quarter in various

restrictions (such as a word count for identified media mentions, etc.). Our broad approach is intended to capture the sort of news that employees may see and react to.¹³ We use these data to identify the beginning of our treatment period in our difference-in-differences regressions. Specifically, our *TaxNews* variable is coded to 1 in all quarters beginning with the first fiscal quarter we identify news coverage of the firm's tax avoidance activities.

Our tax avoidance measures offer two advantages. First, they are salient. Employees and other stakeholders are more likely to impose reputation costs on those responsible when they are informed of tax avoidance activities in a comprehensible way. News coverage likely grabs employees' attentions and also presents tax avoidance in a simplified and comprehensible manner. Thus, news coverage of tax avoidance is salient to employees. Second, news coverage is arguably exogenous.¹⁴ News coverage of tax avoidance is likely random in time and difficult to predict. Moreover, firms likely do not "choose" or select into news coverage of tax avoidance because it is mostly negative. Thus, our measures are unlikely to correlate with other variables that may affect employee ratings.

While we expect that our reputation and tax avoidance measures are improvements on some measures in prior studies, we acknowledge that both measures suffer from potential selection bias. However, Marinescu et al. (2018) and Liu et al. (2018) suggest that Glassdoor.com ratings suffer from minimal selection (self-reporting) bias and that reviewers receive salaries

global media outlets and hand-collecting such news from 2007 to 2018 would be challenging. Moreover, relying on an initial coverage event is consistent with our difference-in-differences strategy which requires a treatment date.

¹³ Chen, Powers, and Stromberg (2018) also hand-collect media mentions of firms' tax avoidance. Our sample differs from their sample because (1) they include small cap firms, (2) they require the company name to be in the headline and (3) they search only in: *The Wall Street Journal*, *The New York Times*, *The Washington Post* and *USA Today*, while we search all media (including internet sources such as Bloomberg.com and CNBC.com), among other differences.

¹⁴ Other, non-tax negative media coverage may pose a threat to identification if it coincides in time with negative tax news. However, we did not identify such coverage when hand-collecting our tax evasion data.

representative of the salary distribution of employees in major metropolitan areas. These studies temper concerns of bias in Glassdoor.com. Our tax avoidance news variable may suffer from selection bias if the firms most likely to suffer reputation costs choose not to avoid taxes. In this case, firms highlighted by the media for avoiding taxes in our sample are firms who face relatively low reputation costs. Yet, we document that these firms with relatively low reputation costs do, in fact, suffer reputation costs following tax avoidance news. Thus, the selection bias in tax avoidance news results in conservative estimates of reputation costs that form a lower bound on potential reputation costs.

Finally, we rely on Compustat Quarterly to incorporate financial statement-based controls. Specifically, we control for return on assets, market-to-book, leverage, size and buy-and-hold returns. All variables are scaled by seasonally-lagged total assets and are defined in Appendix A. We control for return-on-assets because employee satisfaction may be increasing in firm profitability. We control for market-to-book because employees at non-growth firms may rate their firms lower relative to employees at growth firms. We control for leverage because employees at highly-levered firms may rate their firms lower because they are concerned about bankruptcy risks. We control for size because large firms receive more media coverage than small firms. Moreover, employees at large firms may rate their employers higher than employees at small firms because their salaries are high and/or their jobs are secure. We control for buy-and-hold returns to control for any public information or sentiment that may influence employee ratings. Return on assets, leverage and size are seasonally-lagged to ensure that we do not control for our hypothesized effect (Swanquist and Whited 2018). However, our main results are robust to including lagged (by one quarter) and contemporaneous forms of these variables. We use quarterly data to maximize the number of time-series observations in our sample.

Our final samples vary in size based on data availability of our dependent variables. We drop all missing observations with missing control variables. Our baseline regressions are performed on 14,840 firm-quarter observations when *SeniorMgmt* is the variable. When *Firm* is our dependent variable, we have 14,977 firm-quarter observations.

3.2. Empirical Design

To test our hypotheses, we perform generalized difference-in-differences regressions with staggered treatment. The generalized difference-in-differences approach replaces the post and treatment main effect variables (as would be used in a traditional difference-in-differences regression) with unit and time fixed effects. We use generalized difference-in-differences because our treatment is staggered. Thus, we are unable to form a natural control group for a traditional difference-in-differences approach. In both generalized and traditional difference-in-differences, the coefficient on the interaction between the post and treatment variables represents the average treatment effect (ATE).

In our context, we use the following specification to test whether employee ratings decrease after tax avoidance news (*H1* and *H2*, respectively):

$$ReputationCosts_{it} = \alpha + \beta_1 TaxNews + \sum \beta_k Controls + \delta_i + \delta_t + \epsilon_{it}$$

In this equation, *ReputationCosts* is (1) median employee ratings of senior management (*SeniorMgmt*) or (2) median employee ratings of the firm (*Firm*) in a given quarter,¹⁵ depending on whether we are testing our first or second hypothesis. *TaxNews* takes a value of 1 in the first quarter we identify tax avoidance news for firm *i* and in all subsequent quarters. All other quarters

¹⁵ Our main results are robust to using average values of these variables. These results are reported in an additional test.

are coded to 0.¹⁶ In other words, this variable is equivalent to a post variable interacted with a treatment variable in a traditional difference-in-differences strategy. Our control group observations comprise (1) firm-quarters prior to the first quarter in which firm i receives coverage for tax avoidance and (2) firm-quarters for firms that never receive media attention for tax avoidance. δ_i represents firm fixed effects and δ_t represents calendar-quarter fixed effects, as are required by a generalized difference-in-differences strategy. This design is consistent with other studies that implement staggered difference-in-differences (e.g. Bertrand and Mullainathan 2005; Giroud and Mueller 2011). *Controls* is a vector of firm-specific controls. In our baseline specifications, *Controls* is an empty set. In other words, our baseline specifications assume that treatment is exogenous to firm-specific controls. Our unit of measurement is at the firm-quarter level. Consistent with our hypotheses, we predict that β_1 is negative and significant. This result would imply that employee ratings of senior management and firms fall following tax avoidance news.

4. Results

4.1. Coefficient plots (parallel trends assumption test)

We begin by assessing whether pre-treatment trends are parallel while simultaneously examining the persistence of our treatment effects. To do so, we plot the coefficients with error bars for 20 quarters prior and following treatment. We obtain these coefficients from regressions of our *SeniorMgmt* and *Firm* on binary variables coded to 1 for quarter $t-x$ (and $t+x$) and 0 otherwise, where x ranges from 0 to 20. In other words, we regress our ratings variables on 41 binary variables that are coded to 1 in a specific quarter relative to treatment and 0 otherwise. We

¹⁶ For the treated firms, the average number of pre- and post-treatment periods are 21 quarters and 12 quarters post-treatment, respectively.

include firm-level controls, as per our main regression equation. The coefficients on these variables represent the effect of being in the treatment group in that particular quarter. We overlay 90% confidence intervals on estimated effects. Consistent with parallel trends, we expect that these coefficients are not increasing or decreasing prior to treatment in the pre-treatment period.

Our results are reported in Figure 1. In Panel A, we use *SeniorMgmt* as our dependent variable. In the 20 quarters prior to treatment, we observe no trend in the plotted coefficients. That is, the plotted coefficients do not appear to be increasing or decreasing prior to treatment. In the post-treatment period, we observe a sharp decrease in coefficients. Specifically, we observe mostly negative coefficients in each of the post-treatment periods with tighter confidence intervals. A t-test of the pre- and post-means presented below the figure indicates that the decrease is significant. This result provides visual evidence that employees reacted negatively to news about tax avoidance and that this negative reaction persisted for several periods following the tax avoidance news.

In Panel B, we use *Firm* as our dependent variable. Again, in the 20 quarters prior to treatment, we discern no trend in the pre-treatment period. Specifically, our plotted coefficients vary mostly. This is consistent with treated firms and control firms evolving in parallel in the pre-treatment period. Put differently, our results suggest no differences in pre-treatment trends between treated and control firms. Following tax avoidance news, the estimated coefficients turn negative in all post-treatment quarters. Thus, this graph provides visual evidence that treatment resulted in more negative firm ratings from employees and that this negative reaction persists for several periods following treatment. The t-test of differences reported below the figure indicate the decrease is significant at conventional levels. Taken together, our plots provide evidence that

(1) treated and control firms are not trending in divergent or convergent directions prior to treatment and (2) employees impose reputation costs on senior managers and firms following tax avoidance news, relative to untreated firms and relative to the pre-treatment period.

4.2. Tax Avoidance News by Calendar Quarter-Year

In Table 1, we provide the number of companies receiving tax avoidance news coverage for the first time in our sample period. We break down the list by calendar-quarter to demonstrate the dispersion of our treatment observations across time. For example, in the 2nd calendar quarter of 2011, 7 separate firms' tax avoidance was covered in the media for the first time in our sample period. In total, 143 of the 495 firms in our sample receive tax avoidance news coverage at some point in our sample. Overall, tax avoidance news coverage is fairly dispersed across time. Therefore, our estimates are not likely heavily influenced by time-specific effects.

4.3. Descriptive Statistics

Descriptive statistics are reported in Table 2. In Panel A, we report descriptive statistics for variables used in our analyses. *SeniorMgmt* has a mean value of 2.989 and a median value of 3. This suggests that the variable is not skewed. These values suggest employees are fairly neutral towards senior management on average. *Firm* has a mean (median) value of around 3.402 (3.5), which suggest employees hold slightly positive perceptions of their firms on average. *TaxNews*, our binary regressor of interest, has a mean value of .203. This result suggests that 20.3% of firm-quarters follow or include firm-quarters in which the news covers firms' tax avoidance. In other words, 20.3% of firm-quarters are treated observations. *ln(AT)* has a mean (median) value of 9.747 (9.620), which suggest that firms in our sample are generally large, as expected of S&P 500 firms. *MTB* has a mean (median) value of 3.744 (2.708), respectively. *Leverage* takes a mean (median) value of .234 (.212), which is roughly 23% of seasonally lagged total assets on average in our

sample. We find that average *ROA* is around .041 and median *ROA* is around .037, suggesting that firms in our sample are generally profitable, as expected of S&P 500 firms. Average and median *BHR* are 13.2% and 12.4%, respectively.

In Panel B, we report descriptive statistics on our Glassdoor.com ratings to describe the characteristics of employee raters in our sample. *Num_Reviews* is the number of reviews of a given firm in a given quarter. On average, firms receive 64 ratings per quarter. Median *Num_Reviews* is around 18 on average, suggesting that the number of reviews is highly skewed. We find that 82% of employee-raters are full-time employees (*%FullTime*) for an average firm-quarter. 59% of employee-raters are current employees of the firm they rate (*%Current*) in an average firm-quarter. We find that average tenure (*Tenure*) across our employee-raters at their current employer is around 2.5 years. In Table 3, we report our correlation matrix. We find that *TaxNews* is positively and significantly (at the 10% level) related to both *SeniorMgmt* and *Firm*. However, the correlation coefficients are nearly zero.

4.4. Difference-in-differences estimates

In Table 4, we report the results of testing our first hypothesis. In Panel A, we report the results of estimating the effect of tax avoidance news on senior management's reputation using a difference-in-differences regression and without firm-level controls. In column (1), we report results when median senior management rating is our dependent variable in our baseline specification. We find that the coefficient on *TaxNews* is negative and significant at the 1% level. In column (2), we retain median senior management ratings as our response variable but incorporate firm-specific controls. Again, the coefficient on *TaxNews* is negative and significant at the 1% level. Taken together, these two results are consistent with employees imposing

reputation costs on senior management following tax avoidance news by reporting lower perceptions of senior management on Glassdoor.

In columns (3) and (4), we replace *SeniorMgmt* with *Firm*. In column (3), we find that the coefficient on *TaxNews* is negative and significant at the 5% level in our baseline specification. In column (4), we find that the coefficient on *TaxNews* is similarly negative and significant at the 5% level when we include firm-specific controls. Overall, these two results are consistent with employees imposing reputation costs following tax avoidance news. Overall, our results are consistent with our hypothesis. Specifically, our results are consistent with employees imposing reputation costs on (1) managers and (2) their employing firms following tax avoidance news.

5. Additional tests

5.1. Treatment intensity

Next, we replace our binary treatment variable with a more continuous measure of treatment. This test is intended to demonstrate that more media coverage (i.e. more articles) leads to more negative ratings and higher reputation costs. By contrast, our main tests do not distinguish between high media coverage intensity and low media coverage intensity. Rather, our main tests provide evidence that media coverage *generally* imposes reputation costs. We expect that more media coverage increases the probability that employees will read and react to the tax avoidance news. Therefore, we expect that employee ratings changes are increasing in the intensity of media coverage.

To capture coverage intensity, we count the number of independent media sources covering the same news about firm *i*'s tax avoidance in the month following the initial news.¹⁷

¹⁷ We do not extend our collection beyond one month because hand-collection and hand-coding are onerous and time-consuming.

We identify all media articles that mentioned firm i 's tax avoidance in the month following initial media coverage from LexisNexis and verified that the media articles discussed firm i 's tax avoidance. We sort the number of media articles identified into deciles to ensure linearity.¹⁸ We term this variable, *Num_mention*.

We use *Num_mention* as the treatment variable in each of our main difference-in-differences specifications. These specifications retain the same benefits of difference-in-differences but rely on a continuous treatment instead of a binary treatment (Card 1992). Thus, the coefficient on *Num_mention* provides the effect of a decile increase in media mentions on employee ratings, relative to pre-treatment ratings and ratings of control firms.

Our results are reported in Table 5. In columns (1) and (2), we use *SeniorMgmt* as our dependent variable. We find that the coefficient on *Num_mention* is negative and significant at the 1% level in our baseline specification in column (1). In column (2), we incorporate firm-specific covariates and find that the same coefficient remains negative and significant at the 1% level. These two results are consistent with media coverage intensity of tax avoidance increasing reputation costs on senior managers. In columns (3) and (4), we use *Firm* as our dependent variable. In column (3), we find that the coefficient on *Num_mention* is negative and significant at the 1% level in our baseline specification. In column (4), the coefficient remains negative and significant at the 1% level after incorporating firm-specific covariates. These latter two results are consistent with media coverage intensity increasing reputation costs on firms following tax avoidance news.

¹⁸ Our inferences are unchanged if we use (1) a continuous measure of the number of mentions, (2) quintiles or (3) terciles.

6. Cross-sectional analyses

6.1. Consumer-facing industries

In our first cross-sectional test, we examine whether employees in consumer-facing industries react more negatively to tax avoidance news disclosure compared to other employees. Hanlon and Slemrod (2009) and Gallemore et al. (2014) perform similar cross-sectional tests. We expect consumer-facing firms to be more susceptible to being publicly perceived and penalized for being socially irresponsible. Employees of these firms could expect to face backlash from the news and react more negatively to the news (Bhattacharya and Sen 2003). Accordingly, we hypothesize that tax avoidance news decreases the employee ratings of the firm and senior management more in consumer-facing industries compared to other industries.

We use two measures of consumer-facing industries. First, we identify consumer-facing industries using Fama and French's 12-industry classification system. We code the "Consumer Nondurables" and "Consumer Durables" industries as consumer-facing. We create a dummy variable (*Consumer*) coded to 1 if firm i is included in either of these two industries in year t and 0 if firm i is not. Second, we identify retail firms using two-digit SIC codes. Retail firms likely interact with consumers on a more regular basis compared to other firms. This measure (*Retail*) takes a value of 1 if firm i is included in the retail industry (two-digit SIC codes between 52 and 59) in quarter t and 0 otherwise. We interact both of these measures with *TaxNews* in each of our specifications to test this hypothesis. In these specifications, the main effects of *Consumer* and *Retail* are dropped from the results because they are subsumed by our firm fixed effects.

Our results are reported in Table 6. In Panel A, we use *Consumer* as our measure of consumer-facing firms. In column (1), we find that the coefficient on $TaxNews \times Consumer$ is negative and significant at the 1% level when we use median senior management rating as our

response variable in our baseline specification. In column (2), we incorporate firm-specific controls. The coefficient on $TaxNews \times Consumer$ remains negative and significant at the 1% level. These two results are consistent with senior management in consumer-facing industries facing stronger reputation costs compared to firms in other industries. In columns (3) and (4), we use median firm rating ($Firm$) as our dependent variable. In column (3), we report results of our baseline specification. We find that the coefficient on $TaxNews \times Consumer$ is negative and significant at the 1% level. Similarly, we find the same coefficient is negative and significant at the 5% level after including firm-level controls. Taken together, our results are consistent with firms and managers in consumer-facing industries facing stronger reputation losses following tax avoidance news compared to firms in other industries.

In Panel B, we use *Retail* as our measure of consumer-facing industries. In columns (1) and (2), *SeniorMgmt* is our dependent variable. Across both specifications, we find that the coefficient on $TaxNews \times Retail$ is negative and significant at the 10% level. In columns (3) and (4), we use *Firm* as our dependent variable. In both columns, the coefficient on the interaction between $TaxNews \times Retail$ is negative and significant at the 5% level. Overall, our results are consistent with employees at consumer-facing firms imposing stronger reputation costs on both managers and companies compared to employees in other firms.

6.2. Labor union coverage

In our second cross-sectional test, we examine whether firms and managers with employees that are likely to be unionized suffer lower reputation costs from tax avoidance. Prior studies find that unionized workforces share in firms' rents (Lemieux 1998; Card, Lemieux and Riddell 2003). Therefore, unionized employees should react less negatively to tax avoidance news because tax avoidance represents rents extracted from the government. Put differently,

unionized employees benefit from lower tax payments more than other employees (Felix and Hines 2009). Therefore, they should react less negatively to tax avoidance news.

To test this hypothesis, we construct two state-specific measures of probability of union membership. Our first measure captures the percentage of a state's workforce that belongs to a union (*UnionMember*). However, some employees may have the option to join a union but decline to do so. At such firms, we expect that employee wages partially represent rents because some employees at the firm are likely unionized and will bargain with the firm over wages. We therefore use a second measure (*UnionCoverage*), which is the percentage of employees that are covered by a union in the state where a firm's headquarter is located in a given year (Machperson and Hirsch 2003).¹⁹ Employees are counted as covered by a union if they are union members or if they are not members but say they are covered by a union contract. We split these measures into quintiles to ensure linearity. We interact these measures with *TaxNews* in all of our specifications.

Our results are reported in Table 7. In Panel A, we use *UnionCoverage* as our measure of unionization. In column (1), we use our baseline specification with firm and quarter-year fixed effects. *SeniorMgmt* is our dependent variable. We find that the coefficient $TaxNews \times UnionCoverage$ is non-significant at conventional levels. In column (2), we use the same dependent variable and fixed effects, but incorporate firm-specific covariates. The coefficient on $TaxNews \times UnionCoverage$ remains non-significant at conventional levels. In columns (3) and (4), we use *Firm* as our dependent variable. In column (3), we find that the coefficient on the interaction between *Tax News* and *UnionCoverage* is positive and significant at the 5% level in our baseline specification that includes firm and year-quarter fixed effects. In column (4), we

¹⁹ The data used for our two measures are collected from www.unionstats.com and are measured at the state-level.

incorporate firm-specific covariates. Again, the coefficient on the interaction is positive but rises in significance to the 5% level. Overall, our results are consistent with union coverage mitigating reputation costs on firms, but not the reputation costs on managers. Moreover, these different results on firms compared to managers highlights the importance of examining firm reputation costs separately from manager reputation costs.

In Panel B, we use *UnionMember* as our measure of unionization. In column (1), we find that the coefficient on $TaxNews \times UnionMember$ is non-significant at conventional levels in our baseline specification with *SeniorMgmt* as our dependent variable. In column (2), we incorporate firm-specific covariates and find that the same coefficient remains non-significant at conventional levels. In columns (3) and (4), we use *Firm* as our dependent variable. In column (3), we use our baseline specification with firm and quarter-year fixed effects. We find that the coefficient on $TaxNews \times UnionMember$ is positive and significant at the 5% level. In column (4), we incorporate firm-specific covariates. The coefficient on the interaction remains positive and significant at the 5% level. Overall, these results are consistent with employees that are likely unionized imposing less reputation costs on firms, but not managers, for avoiding taxes compared to employees at other firms.

6.3 Firm performance

Next, we examine whether employees at well-performing firms react less negatively to tax avoidance news compared to other employees. We hypothesize that employees at firms that are performing well react less negatively than other employees because strong performance mitigates the negative reaction to tax avoidance news. Employees at well-performing companies likely have more secure jobs, higher pay and better job prospects compared to other employees. Moreover, prior evidence is consistent with firm performance increasing employee satisfaction (Edmans

2011; Luo et al. 2016). Thus, employees will react less adversely to tax avoidance news because they are overall happier with their firm.

We use (1) buy-and-hold abnormal returns (*BHAR*) and (2) sales margins (*SM*) to measure firm performance. Buy-and-hold abnormal returns are measured in the 6 months preceding the quarter t . We split this variable into deciles to force linearity. We omit *BHR* as a control when *BHAR* is our cross-sectional variable. We measure sales margin as the difference between sales and cost of goods sold divided by sales. We split this variable along its mean value. Thus, *SM* takes a value of 1 if firm i 's sales margin is above the mean sales margin in quarter t , and 0 otherwise. We interact *BHAR* and *SM* with *TaxNews* in each of our specifications to test this hypothesis.

Our results are reported in Table 8. In Panel A, we use *BHAR* as our measure of firm performance. In column (1), we use median senior manager rating as our response variable in our baseline specification. The coefficient on $BHAR \times TaxNews$ is positive and significant at the 5% level. We incorporate firm controls in column (2). We find that the same coefficient is positive and significant at the 5% level. Taken together, these two results are consistent with employees at well-performing firms perceiving their senior managers less negatively following tax avoidance news compared to employees at other firms due to their firms' strong performance. In columns (3) and (4), we use median firm rating (*Firm*) as our dependent variable. In both columns, the coefficient on $BHAR \times TaxNews$ is positive and significant at the 1% level. These results are consistent with employees at well-performing firms perceiving their firms less negatively following tax avoidance news compared to other employees.

In Panel B, we use *SM* as our measure of firm performance. In columns (1) and (2), we use *SeniorMgmt* as our dependent variable. In column (1), we find that the coefficient on $SM \times TaxNews$ is positive and significant at the 1% level in our baseline specification. In column

(2), the same coefficient is positive and significant at the 1% level after incorporating firm controls. These two results provide evidence that managers face less reputation costs from tax avoidance news when their firm is performing well. In columns (3) and (4), we use *Firm* as our dependent variable. In column (3), we find that the coefficient on $SM \times TaxNews$ is positive and significant at the 5% level in our baseline specification. After incorporating firm controls in column (4), we find that the same coefficient is positive and significant at the 1% level.

7. Robustness tests

7.1 Average employee ratings

In our first additional test, we replace median employee ratings with average employee ratings. Average employee ratings are more sensitive to outliers than median employee ratings though both are measures of central tendency. For robustness, we replace median employee ratings with average employee ratings in our main tests.

We calculate average employee ratings as the average of all employee ratings within a firm-quarter. We calculate this measure for both senior management ratings (*SnrMgt_Avg*) and firm ratings (*Firm_Avg*). We replace our dependent variables with these two variables across all specifications in our main analysis. Thus, we use these two dependent variables in our baseline specifications and our saturated specifications, which include firm-specific covariates.

Our results are reported in Table 9. In columns (1) and (2), we use *SnrMgt_Avg* as our dependent variable. In column (1), we find that the coefficient on *TaxNews* is negative and significant at the 1% level in our baseline specification, which includes firm and quarter-year fixed effects. In column (2), we find that the coefficient on *TaxNews* is negative and significant at the 1% level after incorporating firm-specific covariates. These two results suggest our main tests of our first hypothesis are not driven by the choice of median ratings and are robust to using

mean ratings. In column (3), we use *Firm_Avg* as our dependent variable in our baseline specification. The coefficient on *TaxNews* is negative and significant at the 5% level. In column (4), we incorporate firm-specific covariates. The coefficient on *TaxNews* remains negative and significant at the 5% level. These last two results suggest our main tests of our second hypothesis are robust to using average ratings and that our results are not driven by the use of median ratings.

7.2. Placebo tests

In this section, we perform placebo tests to ensure that our identified effects are not driven by random differences or spurious trends. We code various periods as “treated” though they are not actually treated. In other words, we “turn on” treatment in various periods during which treated firms did not actually receive tax avoidance news coverage. Intuitively, we should find non-significant results on the coefficients of our “placebo” treatments. We limit our discretion by choosing several different “placebo” treatment periods. Specifically, we use the 1) middle of the sample period remaining after removing treatment periods, 2) five quarters prior to actual treatment ($t-5$) and 3) three quarters prior to treatment ($t-3$) as our placebo treatment periods. We omit (retain) all firm-year observations that are treated (not treated including those firm-years for the treated firms before they receive treatment) in these tests (i.e. all observations of treated firm-year observations following tax avoidance news at that firm) because including treated observations in placebo tests pollutes the post-placebo treatment estimates. In other words, the estimate on the placebo treatment variable will be significant because many of the post-placebo treatment observations are treated firm-year observations. Thus, omission of treatment firm-year observations is appropriate.

Our results are reported in Table 10. In columns (1) and (2) of this Table, we use *SeniorMgmt* as our dependent variable. In columns (3) and (4), we use *Firm* as our dependent variable. In columns (1) and (3), we use our baseline specifications and in (2) and (4) we incorporate firm-specific covariates. In Panel A, we use the middle of the treatment period remaining after removing treatment periods as the date of “placebo” treatment. Across all columns, the coefficient on *TaxNews{Mid}* is non-significant. In Panel B, we use three quarters prior to actual treatment as our “placebo” treatment. Again, the coefficients of interest are non-significant across all columns. In Panel C, we use five quarters prior to actual treatment as our “placebo” date. Across all columns, the coefficient of interest is non-significant. Taken together, our placebo tests are consistent with our identified effects being driven by tax avoidance news rather than spurious trends or random effects.

7.3. Restricting pre-treatment and post-treatment periods

In this section, we restrict our treatment period for treatment firms for robustness. We do not restrict our treatment periods in our main analyses for two reasons. First, restricting the sample period reduces power with little ascertainable benefits (McKenzie 2012 describes this issue in an experimental setting and suggests his analysis extends to the quasi-experimental setting; Gibson and McKenzie 2010 demonstrate that more post-treatment periods increase estimate precision). Second, we do not restrict the sample period of our control firms because they do not have a treatment date. However, we restrict our sample period in this section to demonstrate that our results are not sensitive to pre-treatment and post-treatment periods.

Our treatment period spans 5 quarters prior to tax avoidance news coverage and 5 quarters following tax avoidance news coverage. In other words, our new independent variable of interest (*TaxNews{-5,5}*) takes a value of 1 for the five quarters following tax avoidance news

coverage, 0 for firms that are never treated and 0 in the five quarters prior to treatment for treated firms. Our results are reported in Table 11. Columns (1) and (3) are baseline regressions while columns (2) and (4) include firm covariates. Across columns (1) and (2), we find that the coefficient on $TaxNews\{-5,5\}$ is negative and significant at the 5% level when $SeniorMgmt$ is our dependent variable. In columns (3) and (4), we find that the same coefficient remains negative and significant at the 5% level when $Firm$ is our dependent variable. Taken together, these results suggest our main findings are robust to restricting the period of treatment.

8. Additional test: Cash ETR as a measure of tax avoidance

We use tax avoidance news as our variable of interest in our main analyses because tax avoidance news is likely more salient to stakeholders than financial statement information. In this additional test, we replace our tax news variable with cash effective tax rates from firms' financial statements to provide evidence that financial statement tax information is likely non-salient to stakeholders. In our context, we expect that employees do not react negatively to tax avoidance information from financial statements because tax avoidance information from financial statements is not salient to them. In this section, we provide evidence on whether employees react to tax avoidance information from financial statements.

We use quarterly cash effective tax rates as our variable of interest. We calculate cash effective tax rates as year-to-date cash taxes paid (TXPDY) scaled by year-to-date pre-tax income (PIY) less year-to-date special items (SPIY) following prior studies in tax avoidance (see e.g. Cook, Houston and Omer 2008 and Bratten, Gleason, Larocque, and Mills 2018 for studies using the same measure). We require pre-tax income less special items to be positive. We construct two variations of Cash ETRs because prior studies use either or both variations. First, we truncate the measure to 0 and 1 ($CETR_{trunc}$). In other words, we omit observations with cash

ETRs greater than 1 or less than 0. Second, we reset (i.e. winsorize) the measure to 0 and 1 ($CETR_{win}$). We use *SeniorMgmt* and *Firm* as our dependent variables as before. We incorporate firm-specific controls. Notably, our regressions are no longer difference-in-differences because we do not have a treatment event.

Our results are reported in Table 11. In columns (1) and (3), we use $CETR_{trunc}$ as our dependent variable. In columns (2) and (4), we use $CETR_{win}$ as our dependent variable. In columns (1) and (2), we use *SeniorMgmt* as our dependent variable and in columns (2) and (4), we use *Firm* as our dependent variable. Across all specifications, the coefficient on $CETR$ is non-significant at conventional levels. These results are consistent with our expectations. Specifically, they are consistent with employees not reacting to tax avoidance news from financial statements because financial statement information is not salient to employees on average.²⁰

9. Conclusion

In this study, we examine whether employees impose reputation costs on managers and firms for avoiding corporate taxes. We posit that employees, an important stakeholder group that can influence future firm performance, perceive tax avoidance negatively because they do not clearly benefit from decreased tax payments and they perceive it as unfair and/or socially irresponsible. We use employee ratings data from Glassdoor.com to directly measure changes in employee perceptions of managers and firms. We use news coverage of firms' tax avoidance to proxy for tax avoidance activities that are salient to employees. Using the S&P 500 as the basis of

²⁰ Quarterly cash effective tax rates may be “noisy” because they are based on unaudited financial statement information. However, we do not expect that our non-significant results are driven by low power tests because our tests rely on more than 10,000 observations. Thus, our tests should be high-powered enough to detect small effects.

our sample, we implement difference-in-differences regressions to test whether senior managers and/or the firm suffer reputation costs due to tax avoidance.

Our results are consistent with employees reacting negatively to tax avoidance news. We find that employee ratings of both senior managers and firms decrease following tax avoidance news relative to before the news coverage and relative to firms that never receive tax avoidance news coverage. Taken together, we interpret these results as consistent with tax avoidance inducing reputation costs on both senior management and firms.

In addition, we use a more continuous measure of tax avoidance news as our treatment variable to test whether reputation costs are increasing in the number of media mentions of firms' tax avoidance. We find results consistent media coverage intensity imposing higher reputation costs. Additionally, we perform three cross-sectional tests. First, we show that manager and firm reputations fall more when the firm is in a consumer-facing industry compared to when it is not. We posit that consumer-facing firms are well-covered in the media and employees are more likely to perceive negative news about their firms when the firm is consumer-facing. We use two measures of consumer-facing firms (one based on Fama-French classifications and the other based on SIC 2-digit classifications) and find results consistent with our hypothesis. Second, we hypothesize that employees that are likely unionized react less negatively to tax avoidance news compared to other employees. We use two measures to capture likely unionization, one that captures state union coverage and the other that captures state union membership. We find results consistent with employees likely to be unionized imposing less reputation costs on firms, though we find no similar effect for managers. Next, we hypothesize that employees at high-performing firms react less negatively to tax avoidance news compared to other firms. We expect that employees at well-performing firms are overall satisfied and thus are less likely to react negatively

to tax avoidance news. We use buy-and-hold returns and sales margin to measure performance. We find results consistent with our hypothesis. In addition, we conduct several placebo tests which suggest that our results are not driven by random effects or spurious trends. In an additional test, we replace our tax news variable with cash effective tax rates from financial statements and find results consistent with employees failing to react to tax avoidance news from financial statements.

Our study contributes to the literature on the reputation costs of tax avoidance. Prior studies explore whether other stakeholders react to tax avoidance (e.g. shareholders or consumers) but have not documented employee reactions to tax avoidance. We extend prior studies by examining whether tax avoidance results in employee-imposed reputation costs. Our results are important for several reasons. First, our results are consistent with the assertions of managers that they fear tax avoidance reputation costs (Graham et al. 2014). Second, our study documents the reactions of a unique but important stakeholder – employees – to tax avoidance news.

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Appendix A: Variable Definitions

| Dependent Variables | |
|----------------------------------|---|
| <i>Firm</i> | Median of employees' overall rating of employer. Ranked on a five-point scale, with one being unfavorable and five being favorable. |
| <i>SeniorMgmt</i> | Median of employees' rating of senior management. Ranked on a five-point scale, with one being unfavorable and five being favorable. |
| Independent Variables | |
| <i>TaxNews</i> | Takes a value of 1 if a firm is mentioned in the new articles about their tax avoidance in the current year or a prior year in the sample |
| <i>Num_Mention</i> | Number of mentions of firm <i>i</i> 's tax avoidance in the media in the month immediately following initial disclosure, split into deciles. |
| <i>CETR_{trunc}</i> | Year-to-date income taxes paid (TXPDY) divided by year-to-date pretax income less year-to-date special items (PIY – SPIY), truncated at 0 and 1. We restrict pre-tax income less special items to be positive. |
| <i>CETR_{win}</i> | Year-to-date income taxes paid (TXPDY) divided by year-to-date pretax income less year-to-date special items (PIY – SPIY), winsorized at 0 and 1. We restrict pre-tax income less special items to be positive. |
| Controls | |
| <i>ln(AT)</i> | The natural logarithm of total assets (ATQ) |
| <i>MTB</i> | Market value of equity (PRCC_F*CSHO) divided by book value of common equity (CEQ) |
| <i>Lev</i> | Long term debt (DLTTQ) scaled by seasonally lagged total assets (ATQ) |
| <i>ROA</i> | Operating earnings before depreciation scaled by seasonally lagged total assets (ATQ) |
| <i>BHR</i> | Buy-and-hold return over 12 months preceding quarter <i>t</i> (CRSP) |
| Cross-sectional Variables | |
| <i>Consumer</i> | Takes a value of 1 if firm <i>i</i> is in either the “Consumer Nondurables” or “Consumer Durables” industries based on Fama-French’s 12-industry classification in quarter <i>t</i> and 0 otherwise. |

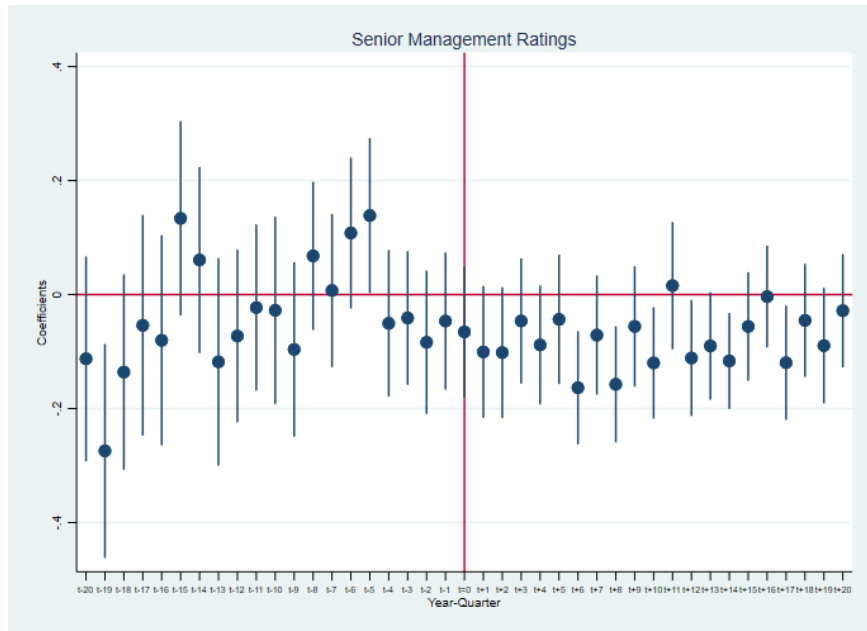
| | |
|----------------------|--|
| <i>Retail</i> | Takes a value of 1 if firm <i>i</i> is in the retail industry (based on two-digit SIC code between 52 and 59) in quarter <i>t</i> and 0 otherwise. |
| <i>UnionCoverage</i> | Percentage of nonagricultural wage and salary employees who are covered by a union in a state in a given year, split into quintiles (Hirsch and Macpherson 2003) |
| <i>UnionMember</i> | Percentage of nonagricultural wage and salary employees who are union members in a state in a given year, split into quintiles (Hirsch and Macpherson 2003) |
| <i>BHAR</i> | Market adjusted buy-and-hold return over 6 months preceding quarter <i>t</i> (CRSP), split into deciles |
| <i>SM</i> | Takes a value of 1 if firm <i>i</i> 's sales margin is above the mean sales margin in quarter <i>t</i> , and 0 otherwise. Sales margin is calculated as sales minus cost of goods sold divided by sales. |

Glassdoor Variables

| | |
|--------------------|--|
| <i>Num_Reviews</i> | The number of employee reviews of firm <i>i</i> posted in quarter <i>t</i> |
| <i>%Fulltime</i> | The percent of employee reviews of firm <i>i</i> posted by full-time employees in quarter <i>t</i> |
| <i>%Current</i> | The percent of employee reviews of firm <i>i</i> posted by current employees in quarter <i>t</i> |
| <i>Tenure</i> | The average tenure of employees who post reviews of firm <i>i</i> posted by in quarter <i>t</i> |

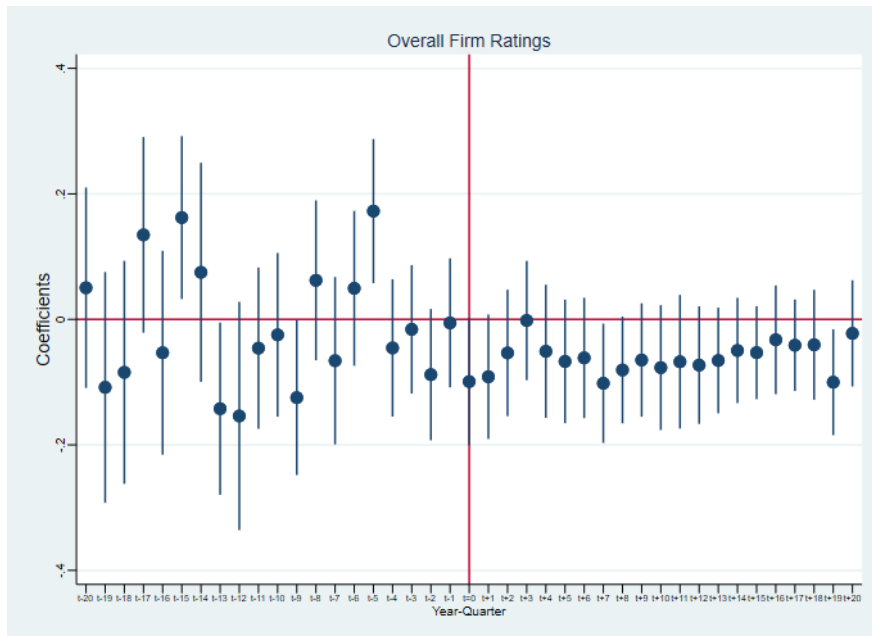
Figure 1: Coefficient error plots (parallel trends assumption test)

Panel A: Coefficient plot using senior management ratings (SeniorMgmt)



| Variables | N | Mean | Std. Error | t-statistic | Mean difference |
|----------------|----|----------|------------|-------------|-----------------|
| Pre-treatment | 20 | -0.01265 | .02200 | -0.5751 | |
| Post-treatment | 21 | -0.06176 | 0.00564 | -10.9426 | |
| Difference | | -0.04911 | 0.02219 | -2.2104 | ** (one-tailed) |

Panel B: Coefficient plot using firm ratings (Firm)



| Variables | N | Mean | Std. Error | t-statistic | Mean difference |
|----------------|----|----------|------------|-------------|-----------------|
| Pre-treatment | 20 | -0.03495 | 0.02246 | -1.5561 | |
| Post-treatment | 21 | -0.07881 | 0.01002 | -7.8653 | |
| Difference | | -0.04386 | 0.02419 | -1.8128 | ** (one-tailed) |

Table 1. Tax avoidance news by calendar-quarter

| Calendar quarter | Number of firms | Calendar quarter | Number of firms |
|------------------|-----------------|------------------|-----------------|
| 2008Q1 | 3 | 2013Q1 | 5 |
| 2008Q2 | 2 | 2013Q2 | 5 |
| 2008Q3 | 2 | 2013Q3 | 8 |
| 2008Q4 | 1 | 2013Q4 | 6 |
| 2009Q1 | 12 | 2014Q1 | 5 |
| 2009Q2 | 11 | 2014Q2 | 5 |
| 2009Q3 | 1 | 2014Q3 | 7 |
| 2009Q4 | 4 | 2014Q4 | 1 |
| 2010Q1 | 5 | 2015Q1 | 3 |
| 2010Q2 | 5 | 2015Q2 | 3 |
| 2010Q3 | 1 | 2015Q3 | 2 |
| 2010Q4 | 0 | 2015Q4 | 1 |
| 2011Q1 | 4 | 2016Q1 | 4 |
| 2011Q2 | 7 | 2016Q2 | 3 |
| 2011Q3 | 3 | 2016Q3 | 1 |
| 2011Q4 | 3 | 2016Q4 | 1 |
| 2012Q1 | 4 | 2017Q1 | 1 |
| 2012Q2 | 5 | 2017Q2 | 0 |
| 2012Q3 | 5 | 2017Q3 | 0 |
| 2012Q4 | 4 | 2017Q4 | 0 |

Note: This table presents the number of firms covered by the news for tax avoidance for the first time in our sample. We present the number of firms by calendar-quarter to demonstrate the temporal dispersion of our treatment. For example, in the 3rd calendar-quarter of 2014, 7 firms received tax avoidance news coverage for the first time in our sample period.

Table 2. Descriptive Statistics

| <i>Panel A: Regression variables</i> | | | | | | | | |
|--------------------------------------|-------|--------|--------|---------|---------|------------------|------------------|--------|
| VARIABLES | N | Mean | Median | SD | Min | 25 th | 75 th | Max |
| <i>SeniorMgmt</i> | 14840 | 2.989 | 3.000 | 0.779 | 1.000 | 2.500 | 3.500 | 5.000 |
| <i>Firm</i> | 14977 | 3.402 | 3.500 | 0.742 | 1.000 | 3.000 | 4.000 | 5.000 |
| <i>TaxNews</i> | 14977 | 0.203 | 0.000 | 0.402 | 0.000 | 0.000 | 0.000 | 1.000 |
| <i>Num_Mention</i> | 14977 | 1.157 | 0.000 | 3.663 | 0.000 | 0.000 | 0.000 | 23.000 |
| <i>CETR_{trunc}</i> | 8053 | 0.228 | 0.217 | 0.153 | 0.000 | 0.115 | 0.314 | 1.000 |
| <i>CETR_{win}</i> | 8709 | 0.224 | 0.206 | 0.180 | 0.000 | 0.091 | 0.311 | 1.000 |
| <i>ln(AT)</i> | 14977 | 9.747 | 9.620 | 1.331 | 7.274 | 8.775 | 10.569 | 14.015 |
| <i>MTB</i> | 14973 | 3.744 | 2.708 | 5.422 | -16.541 | 1.600 | 4.452 | 36.057 |
| <i>Lev</i> | 14977 | 0.234 | 0.212 | 0.170 | 0.000 | 0.113 | 0.322 | 0.852 |
| <i>ROA</i> | 14977 | 0.041 | 0.037 | 0.027 | -0.017 | 0.023 | 0.054 | 0.138 |
| <i>BHR</i> | 14977 | 0.132 | 0.124 | 0.315 | -0.629 | -0.052 | 0.301 | 1.179 |
| <i>Consumer</i> | 14977 | 0.091 | 0.000 | 0.288 | 0.000 | 0.000 | 0.000 | 1.000 |
| <i>Retail</i> | 14977 | 0.088 | 0.000 | 0.283 | 0.000 | 0.000 | 0.000 | 1.000 |
| <i>UnionCoverage</i> | 14066 | 14.347 | 15.400 | 6.388 | 2.600 | 7.500 | 17.900 | 27.200 |
| <i>UnionMember</i> | 14066 | 13.160 | 14.400 | 6.323 | 1.600 | 6.200 | 17.000 | 25.200 |
| <i>BHAR</i> | 14977 | 0.015 | 0.014 | 0.182 | -0.482 | -0.093 | 0.121 | 0.574 |
| <i>SM</i> | 14961 | 0.445 | 0.418 | 0.232 | -0.066 | 0.269 | 0.601 | 0.951 |
| <i>Panel B: Glassdoor variables</i> | | | | | | | | |
| VARIABLES | N | Mean | Median | SD | Min | 25 th | 75 th | Max |
| <i>Num_Reviews</i> | 14977 | 64.218 | 18.000 | 162.351 | 1.000 | 6.000 | 54.000 | 2581.0 |
| <i>%FullTime</i> | 9427 | 0.820 | 0.862 | 0.177 | 0.000 | 0.750 | 0.949 | 1.000 |
| <i>%Current</i> | 14977 | 0.585 | 0.583 | 0.223 | 0.000 | 0.481 | 0.707 | 1.000 |
| <i>Tenure</i> | 9373 | 2.523 | 2.451 | 0.845 | 1.000 | 2.059 | 2.895 | 8.000 |

Note: Our sample period spans 2008 to 2017. All continuous variables in Panel A are winsorized at the 1st and 99th percentiles to mitigate the effect of outliers. All variables are defined in Appendix A.

Table 3. Correlation matrix

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| (1) <i>SeniorMgmt</i> | 1 | 0.65 | 0.07 | 0.07 | 0.08 | 0.06 | -0.07 | 0.01 | 0.03 |
| (2) <i>Firm</i> | 0.67 | 1 | 0.13 | 0.13 | 0.08 | 0.10 | -0.03 | 0.01 | 0.03 |
| (3) <i>TaxNews</i> | 0.07 | 0.13 | 1 | 0.99 | 0.28 | 0.01 | -0.02 | -0.04 | 0.02 |
| (4) <i>Num_Mention</i> | 0.05 | 0.09 | 0.63 | 1 | 0.30 | 0.01 | -0.02 | -0.04 | 0.02 |
| (5) <i>ln(AT)</i> | 0.08 | 0.09 | 0.32 | 0.35 | 1 | -0.36 | 0.00 | -0.42 | -0.05 |
| (6) <i>MTB</i> | 0.04 | 0.06 | 0.00 | 0.03 | -0.16 | 1 | 0.05 | 0.52 | -0.04 |
| (7) <i>Lev</i> | -0.07 | -0.03 | -0.03 | -0.04 | -0.04 | 0.05 | 1 | 0.03 | 0.00 |
| (8) <i>ROA</i> | 0.02 | 0.02 | -0.04 | 0.01 | -0.41 | 0.24 | 0.06 | 1 | -0.01 |
| (9) <i>BHR</i> | 0.03 | 0.03 | 0.02 | 0.01 | -0.06 | -0.01 | -0.01 | -0.01 | 1 |

Note: This table presents the Pearson's (below) and Spearman's (above) correlation matrices among dependent variables and independent variables. All control variables are defined in Appendix A. We bold all correlations that are statistically significant at 0.10 level or better (two-tailed).

Table 4. The effect of firms' tax avoidance news on firms' reputation cost

| VARIABLES | Pred | (1) <i>SeniorMgmt</i> | (2) <i>SeniorMgmt</i> | (3) <i>Firm</i> | (4) <i>Firm</i> |
|--------------------|------|--------------------------|--------------------------|---------------------|---------------------|
| <i>TaxNews</i> | - | -0.090*** (-2.51) | -0.086*** (-2.45) | -0.074** (-2.31) | -0.073** (-2.29) |
| <i>ROA</i> | + | | 1.361*** (2.81) | | 1.179*** (2.90) |
| <i>MTB</i> | + | | 0.002* (1.40) | | 0.001 (0.44) |
| <i>Lev</i> | - | | 0.107 (1.19) | | -0.007 (-0.09) |
| <i>ln(AT)</i> | + | | -0.088*** (-2.62) | | -0.003 (-0.09) |
| <i>BHR</i> | + | | 0.088*** (3.17) | | 0.057*** (2.36) |
| Observations | | 14,840 | 14,840 | 14,977 | 14,977 |
| Adjusted R-squared | | 0.231 | 0.234 | 0.310 | 0.311 |
| Firm FE | | Yes | Yes | Yes | Yes |
| Year-Qtr FE | | Yes | Yes | Yes | Yes |

Notes: This table provides estimates of difference-in-differences regressions on senior management and firm ratings on tax news disclosure. Columns (1) and (2) use senior management ratings as the dependent variable while columns (3) and (4) use firm ratings as the dependent variable. Columns (1) and (3) are baseline specifications while columns (2) and (4) incorporate firm-specific controls. All variables are defined in Appendix A. Standard errors are robust to heteroscedasticity and clustered at the firm level. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively. We conduct one-sided statistical test for our regressor of interest. All other significance levels are estimated using two-sided statistical tests.

Table 5. Additional test: Treatment intensity

| VARIABLES | Pred | (1) <i>SeniorMgmt</i> | (2) <i>SeniorMgmt</i> | (3) <i>Firm</i> | (4) <i>Firm</i> |
|--------------------|------|--------------------------|--------------------------|----------------------|----------------------|
| <i>Num_Mention</i> | - | -0.011*** (-2.44) | -0.010*** (-2.37) | -0.009*** (-2.37) | -0.009*** (-2.35) |
| <i>ROA</i> | + | | 1.358*** (2.80) | | 1.176*** (2.90) |
| <i>MTB</i> | + | | 0.002* (1.41) | | 0.001 (0.45) |
| <i>Lev</i> | - | | 0.107 (1.19) | | -0.007 (-0.09) |
| <i>ln(AT)</i> | + | | -0.088*** (-2.62) | | -0.003 (-0.09) |
| <i>BHR</i> | + | | 0.087*** (3.17) | | 0.057*** (2.36) |
| Observations | | 14,840 | 14,840 | 14,977 | 14,977 |
| Adjusted R-squared | | 0.231 | 0.233 | 0.310 | 0.311 |
| Firm FE | | Yes | Yes | Yes | Yes |
| Year-Qtr FE | | Yes | Yes | Yes | Yes |

Notes: This table provides estimates of difference-in-differences regressions on senior management and firm ratings on decile ranks based on the number of media mentions of tax avoidance following the first mention. Columns (1) and (2) use senior management ratings as the dependent variable while columns (3) and (4) use firm ratings as the dependent variable. Columns (1) and (3) are baseline specifications while columns (2) and (4) incorporate firm-specific controls. All variables are defined in Appendix A. Standard errors are robust to heteroscedasticity and clustered at the firm level. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively. We conduct one-sided statistical test for our regressor of interest. All other significance levels are estimated using two-sided statistical tests.

Table 6. Cross-sectional test – Consumer-facing Firms

| <i>Panel A: Consumer Durables & Non-Durables (Fama-French 12 Industry Classification)</i> | | | | | |
|---|------|--------------------------|--------------------------|----------------------|---------------------|
| VARIABLES | Pred | (1) <i>SeniorMgmt</i> | (2) <i>SeniorMgmt</i> | (3) <i>Firm</i> | (4) <i>Firm</i> |
| <i>TaxNews</i> | - | -0.058* (-1.59) | -0.053* (-1.50) | -0.051* (-1.54) | -0.050* (-1.54) |
| <i>TaxNews*Consumer</i> | - | -0.301*** (-2.66) | -0.307*** (-2.71) | -0.216*** (-2.38) | -0.212** (-2.32) |
| Observations | | 14,838 | 14,838 | 14,975 | 14,975 |
| Adjusted R-squared | | 0.232 | 0.235 | 0.311 | 0.311 |
| Controls | | Yes | Yes | Yes | Yes |
| Firm FE | | Yes | Yes | Yes | Yes |
| Year-Qtr FE | | Yes | Yes | Yes | Yes |
| <i>Panel B: Retail Industry (Graham, Hanlon, Shevlin, and Shroff 2013)</i> | | | | | |
| VARIABLES | Pred | (1) <i>SeniorMgmt</i> | (2) <i>SeniorMgmt</i> | (3) <i>Firm</i> | (4) <i>Firm</i> |
| <i>TaxNews</i> | - | -0.081** (-2.09) | -0.077** (-2.04) | -0.060** (-1.74) | -0.059** (-1.71) |
| <i>TaxNews*Retail</i> | - | -0.095* (-1.43) | -0.092* (-1.50) | -0.131** (-1.91) | -0.133** (-1.90) |
| Observations | | 14,838 | 14,838 | 14,975 | 14,975 |
| Adjusted R-squared | | 0.231 | 0.234 | 0.310 | 0.311 |
| Controls | | No | Yes | No | Yes |
| Firm FE | | Yes | Yes | Yes | Yes |
| Year-Qtr FE | | Yes | Yes | Yes | Yes |

Notes: This table provides estimates of difference-in-differences regressions on senior management and firm ratings on the interaction between binary variables capturing consumer-facing firms and tax news disclosure. In Panel A, we define consumer-facing firms as firms in the “Consumer Nondurables” and “Consumer Durables” industries using Fama-French 12 industry classification. In Panel B, we define consumer-facing firms as firms in the Retail industry, following Graham, Hanlon, Shevlin, and Shroff (2013). Columns (1) and (2) use senior management ratings as the dependent variable while columns (3) and (4) use firm ratings as the dependent variable. Columns (1) and (3) are baseline specifications while columns (2) and (4) incorporate firm-specific controls. All variables are defined in Appendix A. Standard errors are robust to heteroscedasticity and clustered at the firm level. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively. We conduct one-sided statistical test for our regressor of interest. All other significance levels are estimated using two-sided statistical tests.

Table 7. Cross-sectional test – Labor Unions

| <i>Panel A: Labor Union Membership</i> | | | | | |
|--|------|--------------------------|--------------------------|----------------------|----------------------|
| VARIABLES | Pred | (1) <i>SeniorMgmt</i> | (2) <i>SeniorMgmt</i> | (3) <i>Firm</i> | (4) <i>Firm</i> |
| <i>TaxNews</i> | - | -0.112* (-1.52) | -0.124** (-1.72) | -0.158*** (-2.63) | -0.158*** (-2.58) |
| <i>UnionMember</i> | - | -0.019 (-0.83) | -0.017 (-0.78) | -0.010 (-0.54) | -0.009 (-0.48) |
| <i>TaxNews* UnionMember</i> | + | 0.010 (0.39) | 0.015 (0.63) | 0.032* (1.64) | 0.032* (1.62) |
| Observations | | 13,928 | 13,928 | 14,064 | 14,064 |
| Adjusted R-squared | | 0.236 | 0.239 | 0.317 | 0.318 |
| Controls | | No | Yes | No | Yes |
| Firm FE | | Yes | Yes | Yes | Yes |
| Year-Qtr FE | | Yes | Yes | Yes | Yes |
| <i>Panel B: Labor Union Coverage</i> | | | | | |
| VARIABLES | Pred | (1) <i>SeniorMgmt</i> | (2) <i>SeniorMgmt</i> | (3) <i>Firm</i> | (4) <i>Firm</i> |
| <i>TaxNews</i> | - | -0.117* (-1.58) | -0.129** (-1.78) | -0.166*** (-2.73) | -0.166*** (-2.68) |
| <i>UnionCoverage</i> | - | -0.029 (-1.27) | -0.029 (-1.27) | -0.028* (-1.37) | -0.027* (-1.32) |
| <i>TaxNews* UnionCoverage</i> | + | 0.012 (0.48) | 0.018 (0.73) | 0.035** (1.79) | 0.035** (1.77) |
| Observations | | 13,928 | 13,928 | 14,064 | 14,064 |
| Adjusted R-squared | | 0.236 | 0.239 | 0.317 | 0.318 |
| Controls | | No | Yes | No | Yes |
| Firm FE | | Yes | Yes | Yes | Yes |
| Year-Qtr FE | | Yes | Yes | Yes | Yes |

Notes: This table provides estimates of difference-in-differences regressions on senior management and firm ratings on the interaction between firms with labor unions and tax news disclosure. Panel A (Panel B) uses union coverage (union membership) as the cross-sectional variable. Columns (1) and (2) use senior management ratings as the dependent variable while columns (3) and (4) use firm ratings as the dependent variable. Columns (1) and (3) are baseline specifications while columns (2) and (4) incorporate firm-specific controls. All variables are defined in Appendix A. Standard errors are robust to heteroscedasticity and clustered at the firm level. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively. We conduct one-sided statistical test for our regressor of interest. All other significance levels are estimated using two-sided statistical tests.

Table 8. Cross-sectional test – Firm performance

| <i>Panel A: Buy and hold abnormal returns over the past 6 months</i> | | | | | |
|--|------|--------------------------|--------------------------|----------------------|----------------------|
| VARIABLES | Pred | (1) <i>SeniorMgmt</i> | (2) <i>SeniorMgmt</i> | (3) <i>Firm</i> | (4) <i>Firm</i> |
| <i>TaxNews</i> | - | -0.133*** (-3.21) | -0.127*** (-3.10) | -0.116*** (-3.32) | -0.113*** (-3.24) |
| <i>BHAR</i> | - | 0.054* (1.32) | 0.049 (1.22) | 0.023 (0.65) | 0.030 (0.80) |
| <i>TaxNews* BHAR</i> | + | 0.009** (1.85) | 0.009** (1.88) | 0.009*** (2.37) | 0.009*** (2.36) |
| Observations | | 14,838 | 14,838 | 14,975 | 14,975 |
| Adjusted R-squared | | 0.232 | 0.233 | 0.311 | 0.311 |
| Controls | | No | Yes | No | Yes |
| Firm FE | | Yes | Yes | Yes | Yes |
| Year-Qtr FE | | Yes | Yes | Yes | Yes |
| <i>Panel B: Sales margins</i> | | | | | |
| VARIABLES | Pred | (1) <i>SeniorMgmt</i> | (2) <i>SeniorMgmt</i> | (3) <i>Firm</i> | (4) <i>Firm</i> |
| <i>TaxNews</i> | - | -0.172*** (-4.07) | -0.168*** (-4.01) | -0.137*** (-3.51) | -0.137*** (-3.49) |
| <i>SM</i> | - | 0.012 (0.32) | -0.002 (-0.05) | -0.011 (-0.32) | -0.023 (-0.65) |
| <i>TaxNews* SM</i> | + | 0.161*** (2.76) | 0.161*** (2.83) | 0.123*** (2.54) | 0.125*** (2.59) |
| Observations | | 14,822 | 14,822 | 14,959 | 14,959 |
| Adjusted R-squared | | 0.232 | 0.234 | 0.311 | 0.311 |
| Controls | | No | Yes | No | Yes |
| Firm FE | | Yes | Yes | Yes | Yes |
| Year-Qtr FE | | Yes | Yes | Yes | Yes |

Notes: This table provides estimates of difference-in-differences regressions on senior management and firm ratings on the interaction between firm performance and tax news disclosure. Panel A (Panel B) uses buy and hold abnormal returns over the past 6 months (sales margins) as the cross-sectional variable. Columns (1) and (2) use senior management ratings as the dependent variable while columns (3) and (4) use firm ratings as the dependent variable. Columns (1) and (3) are baseline specifications while columns (2) and (4) incorporate firm-specific controls. All variables are defined in Appendix A. Standard errors are robust to heteroscedasticity and clustered at the firm level. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively. We conduct one-sided statistical test for our regressor of interest. All other significance levels are estimated using two-sided statistical tests.

Table 9. Robustness test: Average employee ratings

| VARIABLES | Pred | (1) | (2) | (3) | (4) |
|--------------------|------|----------------------|----------------------|---------------------|---------------------|
| | | <i>SnrMgt_Avg</i> | <i>SnrMgt_Avg</i> | <i>Firm_Avg</i> | <i>Firm_Avg</i> |
| <i>TaxNews</i> | - | -0.072*** (-2.41) | -0.068*** (-2.34) | -0.046** (-1.75) | -0.045** (-1.73) |
| <i>ROA</i> | + | | 1.279*** (3.17) | | 0.865*** (2.43) |
| <i>MTB</i> | + | | 0.002** (1.89) | | 0.001 (0.49) |
| <i>Lev</i> | - | | 0.116* (1.53) | | 0.028 (0.49) |
| <i>ln(AT)</i> | + | | -0.067*** (-2.46) | | -0.022 (-0.92) |
| <i>BHR</i> | + | | 0.065*** (2.88) | | 0.061*** (3.18) |
| Observations | | 14,840 | 14,840 | 14,977 | 14,977 |
| Adjusted R-squared | | 0.238 | 0.240 | 0.312 | 0.313 |
| Firm FE | | Yes | Yes | Yes | Yes |
| Year-Qtr FE | | Yes | Yes | Yes | Yes |

Notes: This table provides estimates of difference-in-differences regressions on senior management and firm ratings on tax news disclosure. Columns (1) and (2) use average senior management ratings as the dependent variable while columns (3) and (4) use average firm ratings as the dependent variable. Columns (1) and (3) are baseline specifications while columns (2) and (4) incorporate firm-specific controls. All variables are defined in Appendix A. Standard errors are robust to heteroscedasticity and clustered at the firm level. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively. We conduct one-sided statistical test for our regressor of interest. All other significance levels are estimated using two-sided statistical tests.

Table 10. Robustness test: Placebo tests

| <i>Panel A: Pseudo TaxNews event in the middle of untreated period</i> | | | | | |
|--|------|--------------------------|--------------------------|--------------------|--------------------|
| VARIABLES | Pred | (1) <i>SeniorMgmt</i> | (2) <i>SeniorMgmt</i> | (3) <i>Firm</i> | (4) <i>Firm</i> |
| <i>TaxNews{Mid}</i> | ? | -0.024 (-0.53) | -0.024 (-0.54) | -0.039 (-0.97) | -0.039 (-0.99) |
| Observations | | 11,817 | 11,817 | 11,939 | 11,939 |
| Adjusted R-squared | | 0.216 | 0.218 | 0.281 | 0.282 |
| Controls | | No | Yes | No | Yes |
| Firm FE | | Yes | Yes | Yes | Yes |
| Year-Qtr FE | | Yes | Yes | Yes | Yes |
| <i>Panel B: Pseudo TaxNews event occurs 3 quarters before actual treatment</i> | | | | | |
| VARIABLES | Pred | (1) <i>SeniorMgmt</i> | (2) <i>SeniorMgmt</i> | (3) <i>Firm</i> | (4) <i>Firm</i> |
| <i>TaxNews{t-3}</i> | ? | -0.062 (-1.19) | -0.063 (-1.23) | -0.037 (-0.95) | -0.039 (-1.01) |
| Observations | | 11,817 | 11,817 | 11,939 | 11,939 |
| Adjusted R-squared | | 0.216 | 0.218 | 0.281 | 0.282 |
| Controls | | No | Yes | No | Yes |
| Firm FE | | Yes | Yes | Yes | Yes |
| Year-Qtr FE | | Yes | Yes | Yes | Yes |
| <i>Panel C: Pseudo TaxNews event occurs 5 quarters before actual treatment</i> | | | | | |
| VARIABLES | Pred | (1) <i>SeniorMgmt</i> | (2) <i>SeniorMgmt</i> | (3) <i>Firm</i> | (4) <i>Firm</i> |
| <i>TaxNews{t-5}</i> | ? | -0.015 (-0.33) | -0.017 (-0.36) | 0.012 (0.31) | 0.011 (0.28) |
| Observations | | 11,817 | 11,817 | 11,939 | 11,939 |
| Adjusted R-squared | | 0.216 | 0.218 | 0.281 | 0.282 |
| Controls | | No | Yes | No | Yes |
| Firm FE | | Yes | Yes | Yes | Yes |
| Year-Qtr FE | | Yes | Yes | Yes | Yes |

Notes: This table provides estimates of difference-in-differences regressions on senior management and firm ratings on pseudo-tax-news disclosure. In Panel A, the pseudo tax news disclosure occurs in the middle of untreated period for treated firms. In Panels B and C, the pseudo tax news disclosure occurs 3 and 5 quarters before the actual tax news disclosure, respectively. Columns (1) and (2) use senior management ratings as the dependent variable while columns (3) and (4) use firm ratings as the dependent variable. Columns (1) and (3) are baseline specifications while columns (2) and (4) incorporate firm-specific controls. All variables are defined in Appendix A. Standard errors are robust to heteroscedasticity and

clustered at the firm level. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively. We conduct one-sided statistical test for our regressor of interest. All other significance levels are estimated using two-sided statistical tests.

Table 11. Robustness test: Restricting pre- and post-treatment periods

| VARIABLES | Pred | (1) <i>SeniorMgmt</i> | (2) <i>SeniorMgmt</i> | (3) <i>Firm</i> | (4) <i>Firm</i> |
|-----------------------|------|--------------------------|--------------------------|---------------------|---------------------|
| <i>TaxNews</i> {-5,5} | - | -0.071** (-1.86) | -0.067** (-1.77) | -0.077** (-2.23) | -0.074** (-2.14) |
| <i>ROA</i> | + | | 1.313** (2.25) | | 1.291*** (2.62) |
| <i>MTB</i> | + | | 0.001 (0.94) | | 0.001 (0.36) |
| <i>Lev</i> | - | | 0.102 (0.96) | | 0.028 (0.33) |
| <i>ln(AT)</i> | + | | -0.126*** (-2.94) | | -0.039 (-0.99) |
| <i>BHR</i> | + | | 0.076*** (2.47) | | 0.047** (1.74) |
| Observations | | 11,406 | 11,406 | 11,513 | 11,513 |
| Adjusted R-squared | | 0.213 | 0.215 | 0.291 | 0.292 |
| Firm FE | | Yes | Yes | Yes | Yes |
| Year-Qtr FE | | Yes | Yes | Yes | Yes |

Notes: This table provides estimates of difference-in-differences regressions on senior management and firm ratings on tax news disclosure. We restrict the sample period for treated firms to 5 quarters prior to and following tax news disclosure. Columns (1) and (2) use senior management ratings as the dependent variable while columns (3) and (4) use firm ratings as the dependent variable. Columns (1) and (3) are baseline specifications while columns (2) and (4) incorporate firm-specific controls. All variables are defined in Appendix A. Standard errors are robust to heteroscedasticity and clustered at the firm level. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively. We conduct one-sided statistical test for our regressor of interest. All other significance levels are estimated using two-sided statistical tests.

Table 12. Robustness test: Cash ETR as a measure of tax avoidance

| VARIABLES | Pred | (1) | (2) | (3) | (4) |
|--------------------|------|-----------------------------|---------------------------|-----------------------------|---------------------------|
| | | <i>SeniorMgmt</i> | | <i>Firm</i> | |
| | | <i>CETR_{trunc}</i> | <i>CETR_{win}</i> | <i>CETR_{trunc}</i> | <i>CETR_{win}</i> |
| <i>CETR</i> | + | -0.032 (-0.42) | -0.046 (-0.76) | -0.013 (-0.19) | 0.008 (0.15) |
| <i>ROA</i> | + | 1.631*** (2.36) | 1.604*** (2.49) | 1.879*** (3.23) | 1.603*** (2.87) |
| <i>MTB</i> | + | 0.001 (0.63) | 0.001 (0.71) | -0.001 (-0.52) | -0.001 (-0.50) |
| <i>Lev</i> | - | 0.112 (1.00) | 0.068 (0.64) | -0.079 (-0.86) | -0.068 (-0.77) |
| <i>ln(AT)</i> | + | -0.100*** (-2.35) | -0.100*** (-2.48) | -0.010 (-0.21) | -0.009 (-0.20) |
| <i>BHR</i> | + | 0.059** (1.72) | 0.051* (1.55) | 0.088*** (2.90) | 0.076*** (2.66) |
| Observations | | 7,962 | 8,616 | 8,053 | 8,709 |
| Adjusted R-squared | | 0.253 | 0.246 | 0.333 | 0.327 |
| Firm FE | | Yes | Yes | Yes | Yes |
| Year-Qtr FE | | Yes | Yes | Yes | Yes |

Notes: This table provides estimates of OLS regressions on senior management and firm ratings on cash effective tax rates. Columns (1) and (2) use senior management ratings as the dependent variable while columns (3) and (4) use firm ratings as the dependent variable. The cash ETR measure used in Columns (1) and (3) is truncated at 0 and 1 while the measure in columns (2) and (4) is winsorized at 0 and 1. Panel A uses quarterly changes in cash ETR while Panel B uses quarterly levels of cash ETR as the independent variable. All variables are defined in Appendix A. Standard errors are robust to heteroscedasticity and clustered at the firm level. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively. We conduct one-sided statistical test for our regressor of interest. All other significance levels are estimated using two-sided statistical tests.