Financial Misconduct and Changes in Employee Satisfaction[*]

Yuqing Zhou[*†1] and Christos Makridis[‡2]

[1]University of California at Los Angeles, Anderson School of Management

[2]MIT, Sloan School of Management

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Abstract

We use Glassdoor data to study the effects of the public announcement of financial misconduct on employees' perceptions of firms and managers. We find a 0.32 standard deviation decline in employees' overall company ratings and 0.14 to 0.40 standard deviation declines in ratings of career opportunity, compensation benefit, senior leadership, work-life balance, culture value, and recommendation. Additional analysis shows that long-term reputation damage is likely to be the main economic channel behind the findings. Moreover, we further assess whether employee ratings are helpful in predicting misconduct. During the years of the misconduct period, employees who are more likely to have private information lowered their ratings. Such employees' ratings help predict misconduct.

JEL Code: G3, M4

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1 Introduction

Financial misconduct can affect firms through top managers, investors, consumers, and other firms in the same industry in various ways (Agrawal et al. [1999]; Erickson et al. [2006]; Sadka [2006]; Beatty et al. [2013]; Li [2016]). Our paper uses new and proprietary micro-data from Glassdoor.com for the period between 2008 and 2016 to investigate changes in employees' perception of firms and managers during the misconduct period and after the public announcement of misconduct. Employee satisfaction is crucial for firm productivity and also proxies for a firm's ability to attract and retain talented human capital. Brown and Matsa [2016] document that employees pay attention to firms' conditions. They find that corporate distress affects firms' job application pools. It is reasonable to expect a negative relation between public announcement of financial misconduct by a firm and its employees' perceptions of the firm. Moreover, employees, as insiders, may observe nonpublic and value-relevant information about their employers [Green et al., 2019]. Thus, their opinions may help predict financial misconduct.

First, we estimate the effects of the public announcement of misconduct on employees' ratings of their employers. We find that the average rating of the company declines by 0.32 standard deviation (sd) in the years that follow the public announcement of misconduct. This estimate is statistically significant and robust to the inclusion of a wide array of factors, including year fixed effects, month fixed effects, firm or state fixed effects, time-varying firm- and state-level trends, and characteristics of both firms and employees. Employees' perceptions about career advancement opportunities, compensation and benefits, and leadership are the most adversely affected aspects. This finding is consistent with the view that financial misconduct reflects weak leadership (Graham et al. [2005]; Fich and Shivdasani [2007]). The ratings of work-life balance, culture, and percentage of employees recommending the employer also decline significantly, but the magnitudes are smaller. We also find that the effects are stronger among employees who have less education and shorter

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tenure.

Next, we discuss the potential economic channels behind the decrease in employee satisfaction after the announcement of misconduct. The first potential channel is the short-term litigation cost and the related stock return drop. Penalties and litigation settlement costs following the public disclosure of misconduct lead to an immediate negative stock return and increase in financial distress, which may cause employees to be concerned about firm performance. The second channel could be reduced compensation and higher risk of layoff. After financial misconduct is caught and publicly announced, a firm may adjust its labor investment. Kedia and Philippon [2009] show that firms shed labor and capital when misreporting is detected. The last possible channel pertains to long-term reputation damage. Companies care about how the public and the media perceive their brands, which represents an important subset of intangible capital (e.g., Barth et al. [1998]). Firm reputation is damaged after the public disclosure of financial misconduct, and this damage would adversely affect a firm's long-term performance. We first show that although employees adjust their ratings downward right after the announcement of misconduct, the magnitude of this adjustment is small and their ratings continue to decrease afterwards. This finding implies that changes in employee ratings do not mainly reflect the short-term litigation cost or related stock return crash. Moreover, we also find that employee ratings are not positively associated with yearly abnormal stock return, which implies that employees do not adjust their ratings mainly based on employers' stock return. Furthermore, we examine the impact of a firm's misconduct on employee salaries. After an announcement of misconduct, salaries are not affected on average in the long run, although in the short run, employees with low education or short tenure, non-regular workers, young workers, or workers outside the firm's headquarters' state experience wage declines. This outcome indicates that decreased compensation only affects employee ratings in the short run, if there are any effects. Based on the above evidence, litigation cost, stock return drop, and compensation/layoff channels

may affect changes in short-term employee satisfaction after the disclosure of misconduct. However, the reputation damage channel is likely to be the primary driving force in the long run because a damaged reputation would affect firms for a long time.

Furthermore, we investigate the effects of financial misconduct on employees' perceptions of their firms during the years that misconduct is being committed. We find that employees' overall rating during these years drops by 0.20 sd. Unlike our earlier results for the years following the announcement of misconduct, these effects concentrate among older employees and employees working in the state where the headquarters is located and among those who are more likely to hold managerial positions. This finding suggests that these employees are exposed to more private information while the misconduct is taking place. In contrast, other employees may only hear about the misconduct when it becomes public.

Given that some employees have private information when firms are committing fraud, we investigate whether employee ratings can help predict misconduct. We follow the prediction analysis in Dechow et al. [2010]. Compared to a prediction model that only includes financial characteristics, our model with employee ratings performs better. First, the R-square of the prediction regression jumps from 0.062 to 0.162, which means that the new model has much higher explanatory power. Second, we rank firm-years into four portfolios based on the magnitude of their probability of misconduct. We find that the model without employee ratings assigns 61.54% of misconduct firms to quartile 4, which is associated with the highest probability to conduct fraud, while the new model assigns 84.62% of misconduct firms to quartile 4. Last, after the employee ratings are added to the prediction model, its sensitivity increases; the Type II error rate sharply decreases from 38.46% to 15.38%, and the Type I error has little change.

Our paper contributes to three branches of literature. The first focuses on the real effects of financial misconduct. For example, Karpoff et al. [2008] show that the penalties imposed by the legal

system on firms with financial misconduct are small relative to the penalties imposed by the market. Beatty et al. [2013] find that high-profile financial misconduct prompts competitors to increase investment, possibly because companies are increasing investment relative to trends in those years [Kedia and Philippon, 2009], which places competitive pressure on peers to follow along. Building on Beatty et al. [2013], Li [2016] finds that the adverse effect of financial misstatements is not limited to high-profile scandals; a broader sample of incidents yield the same results, and declines are apparent not only in capital investment, but also R&D, advertising, and price setting. More relatedly, Choi and Gipper [2019] examine the effects of fraudulent financial reporting on wages and employee turnover. They find that fraud firms' employee wages decline and the separation rate is higher during and after fraud periods.[1] Our paper documents that employee satisfaction changes during the misconduct period and after the announcement of misconduct. It provides an explanation for declines in stock price and firm value following the announcement of misconduct. This explanation is mainly based on a decline in firm reputation. The negative effect of misconduct disclosure on employee satisfaction could hurt firm productivity, and it also proxies for a firm's decreased ability to attract and retain human capital.[2]

Second, our paper contributes to the literature on predicting financial misconduct. Dechow et al. [2010] document the most common types of misstatements (overstatement of revenues, misstatement of expenses, capitalizing costs) and find that at the time they occur, accrual quality is low and both financial and non-financial measures of performance are deteriorating. Other papers have used not only financial (Beneish [1999]; Summers and Sweeney [1998]; Nieschweitz et al. [2000]) and corporate governance measures (Dechow et al. [1996]; Beasley [1996]; Farber [2005]), but also

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[1]While they focus on the labor force, we pay attention to the decreased employees' perceptions of firms and managers after the revelation of the frauds and the implications for firm productivity and a firms ability to attract and retain talented human capital. Moreover, we also present that employees contain private information for predicting misconduct beforehand.

[2]Broadly speaking, our paper is also related to accounting research that examines the effects of earnings targets on employees (e.g., [Caskey and Ozel, 2017]) and trust in management (e.g., [Tsui and Vance, 2019]).

non-financial measures [Brazel et al., 2009] to predict misconduct. We demonstrate in our paper that including employee rating variables improves the quality of a model to predict financial misconduct. This finding is consistent with the literature demonstrating that rank and file employees possess valuable information about their employers [Green et al., 2019].

The third branch of literature focuses on the value of human capital for a firm. Both practitioners and researchers emphasize the increasing importance of human capital for modern firms (Zingales [2000]; Fedyk and Hodson [2019]). Brown and Matsa [2016] examine the impact of corporate distress on firms job application pool. They find that an increase in an employers distress results in fewer and lower-quality applicants. Our paper demonstrate that financial misconduct decreases employee satisfaction and thus deteriorates the ability of a firm to attract and retain talented employees due to its damaged reputation in the marketplace. Our paper also provides microeconomic evidence consistent with Garrett et al. [2014], who show that financial misconduct can erode trust in an organization and thus lower productivity and financial performance.

Our paper is organized as follows. Section 2 introduces the data sets and provides summary statistics. Section 3 presents the research design and results for changes in employee ratings after the misconduct announcement. Section 4 discusses the potential economic channels behind the decrease in employee satisfaction. Section 5 shows the adjustment in employee ratings during the period when misconduct is committed. Section 6 investigates the implications for predicting financial misconduct. Section 7 provides robustness tests. Section 8 concludes.

2 Data and Summary Statistics

2.1 Glassdoor data

Our primary data are drawn from Glassdoor, a large crowd-sourcing company that gathers information on both compensation (wage and non-wage benefits) and perceptions of workplace practices. We use data collected between 2008 and 2016. Individuals who visit the Glassdoor website are asked to take surveys regarding their salary, non-wage benefits, and ratings of their company across several dimensions. The majority of employer ratings follow a Likert scale, ranging from one to five stars, although a few questions are binary (e.g., CEO approval - yes/no). Figure 1 shows the company review questionnaire from the Glassdoor website.

[Insert Figure 1]

Our research joins an emerging empirical literature that exploits variation in online reviews (Dai et al. [2018]; Fradkin et al. [2018]). Although one of our concerns is non-random selection into their site – that is, only very happy or very upset employees post their opinions – recent experimental research from Marinescu et al. [2018] suggests that providing formal or informal incentives can significantly reduce the potential for bias in data from self-reported reviews. For example, Glassdoor's "give to get" model requires individuals to contribute information about their company if they want to receive information about other companies' compensation and ratings. In this paper, we restrict our baseline sample to observations with non-missing values for all dependent and independent variables.[3]

Moreover, we reproduce the external validity examination of the Glassdoor sample in Liu et al. [2018], comparing the sample to nationally representative data collected by the US Census Bureau and the Bureau of Labor Statistics. According to the patterns in Figure A.1, Figure A.2, and

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[3]A large proportion of the raw data has been dropped, but the final sample is still representative. We present details of the full sample and the final regression sample in Table 1 and Table 2.

Figure A.3, although the Glassdoor data tend to come from workers with higher income and more education compared to census data, significant overlaps in the wage distribution and composition of most industries and occupations are present, which minimizes sample selection concerns. In sum, these exercises give us confidence that the variation inherent in the Glassdoor data is useful for causal inference.

[Insert Table 1]

Table 1 presents the summary statistics of Glassdoor ratings and employees' base pay for the full sample and the regression sample. In the full Glassdoor sample, the average ratings of firms in different dimensions range from 2.89 to 3.25 and 58% of employees recommend their employers. After the sample is restricted to individuals with non-missing ratings and other personal information controlled in the analysis, the number of observations drops substantially. Nevertheless, the average ratings of firms in the remaining sample are still similar to those in the full sample. Within the regression sample, employees' average ratings are very close between firms that have misconduct versus those that never had misconduct, except for leadership and culture, which are rated slightly higher in the non-AAER firms.[4] The last column in Table 1 shows the average base pay of employees. We keep individuals that report annual pay, but not those reporting monthly or hourly pay. Employees' base pay is normalized to 1/1/2017 dollars using the CPI.[5] Based on the last column, employees' average base pay in firms that have misconduct is higher than in firms that never had detected misconduct.[6]

[Insert Table 2]

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[4]Non-AAER firms indicate those firms that are not in Accounting and Auditing Enforcement Releases data.

[5]The CPI inflation information comes from: `https://www.bls.gov/data/inflation_calculator.htm`

[6]The average base pay is comparatively high, probably because we restrict our sample to individuals that report annual pay, which excludes part-time workers. In addition, the Glassdoor data are skewed towards higher-income workers. However, as we discussed earlier, the data match the overall earnings across different metro areas and industry partitions quite well, minimizing selection concerns [Liu et al., 2018].

Table 2 summarizes the main features of Glassdoor reviewers. The majority of reviewers have a bachelor's degree or higher level of educational attainment. They are also younger relative to the age distribution of US job market participants. Over 50% of the sample are between 25 and 39 years old, while workers over 50 years of age constitute only 11.6% of the sample. 55% of reviewers are male, and over 76% are full-time workers. Around 67% of reviewers work in the states where the headquarters is located, and the remainder work in other states. Worker characteristics are similar between the full Glassdoor sample and the regression sample. Perhaps surprisingly, the individuals associated with firms that we focus on through the AAER data are not statistically distinguishable, at least in terms of major demographic characteristics, from those at firms not contained in the AAER data, suggesting that the Glassdoor sample is sufficiently comprehensive. We do, however, find that individuals in the AAER sample are less likely to be female, with an incidence of 36.06% versus 41.78% in the non-AAER sample.

2.2   Accounting and Auditing Enforcement Releases

We use AAERs as our primary source of information about public disclosure of misconduct. Since 1982, the Securities and Exchange Commission (SEC) has issued AAERs either during or at the conclusion of an investigation of a company, an auditor, or an officer for alleged accounting and/or auditing misconduct. These announcements provide varying degrees of detail on the nature of the misconduct, the individuals and entities involved, and their effect on the financial statements. In addition to the release date, AAERs also contain the year and quarter information of the period when the misconduct occurred.

[Insert Figure 2]

This data set currently consists of 3,813 SEC AAERs issued between May 17, 1982, and September 30, 2016. These AAERs cover 1,540 firm misstatement events, of which 1,019 affect the firms'

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quarterly and/or annual financial statements. We have roughly 600 companies in our sample. These data, however, are likely to suffer from Type II error – that is, companies that have not been caught are classified as not having engaged in financial misconduct. Consequently, we may underestimate the potential effect of misconduct on firm ratings.

[Insert Table 3]

Table 3 presents summary statistics about the share of AAERs by misconduct year. We only list AAERs pertaining to firms with misconduct after 2000. The fact that the number of AAERs oscillates so much provides identifying variation that is not captured simply by a time trend or technological change. One limitation of the data, however, is that we treat financial misconduct as a homogeneous treatment effect when in reality it varies in severity.

2.3   Audit Analytics Advanced Non-Reliance Restatement database

We also use the Audit Analytics Advanced Non-Reliance Restatement database, updated in 2018. Non-reliance restatements refer to restatements that undermine previous and/or current financial statements due to material accounting misstatements that must be restated in an 8-K[7] item 4.02 filing. Non-reliance misstatements exclude nonmaterial errors, such as "out-of-period" adjustments, and revision restatements, such as voluntary or mandatory changes in accounting standards. The Audit Analytics database includes all restatements filed after January 2000 for all publicly traded companies listed on one of the main US exchanges. Key for our analysis, the Audit Analytics database tracks the years when a firm restates, which like announcement years in AAERs, correspond to each filing.

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[7]In addition to filing annual reports on Form 10-K and quarterly reports on Form 10-Q, public companies must report certain material corporate events on a more current basis. Form 8-K is the "current report" companies must file with the SEC to announce major events that shareholders should know about.

2.4 Financial Data

We also gather a range of financial characteristics about organizations from Compustat to enable controlling and testing for potential changes in organizational performance following misconduct. If, for example, ratings change in response to performance shocks, and these shocks are correlated with misconduct, we may spuriously attribute movement in employee beliefs to economic changes in the organization. These financial characteristics help us explicitly control for these concerns. Lastly, we use stock return data from the Center for Research in Security Prices (CRSP) to test whether our main results are mainly driven by stock market fluctuation.

3 Employees' Perception after Announcement of Misconduct

3.1 Identification Strategy

Our baseline empirical specification applies a multiple-period difference-in-difference estimator of the following form:

$$y_{ift} = \gamma 1[t \geq MisconductAnnouncement]_{ft} + \beta D_{it} + \phi X_{ft} + \zeta_f + \lambda_t + \epsilon_{ift} \qquad (1)$$

where y_{ift} denotes several different ratings of an individual i in firm f and month-year t, $1[t \geq MisconductAnnouncement]_{ft}$ denotes an indicator for the years following the public announcement of the misconduct[8], D_{it} denotes individual-level demographic controls (e.g., education, age, gender), X_{ft} denotes firm-level financial controls, and ζ and λ denote firm and time (year and month) fixed effects. Our inclusion of firm and time fixed effects is to control for unobserved firm characteristics that could affect employee perceptions, and control for economic shocks concurrent

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[8]In cases in which firms have multiple AAERs in different years, we use the year that the first AAER was announced to generate $1[\geq MisconductAnnouncement]_{ft}$. For AAERs announced between 1995 and 2016 and successfully matched to the AAER Annual file, only two firms have multiple AAERs. Therefore, the way in which we deal with firms that have multiple AAERs is unlikely to affect our analysis.

with the announcement of misconduct, which could spuriously generate a negative gradient on the misconduct. ϵ_{ift} is the error term. We cluster standard errors at the firm level to allow for autocorrelation in the error term within the firm over time [Bertrand et al., 2004].

Our primary coefficient of interest is γ, which characterizes the average response of our employee rating of the company to the public announcement of financial misconduct. The change in rating could reflect, for example, a decline in the employees' perception of the company or a decline in the employees' expectations about the public perception of the company; either way, the firm's reputational capital suffers. Identification of γ requires that unobserved determinants of employee perceptions are uncorrelated with the public announcement of the financial misconduct. We argue that the public announcement of financial misconduct is plausibly exogenous because firms do not know when the SEC will start an investigation, although they endogenously choose when to commit the misconduct. The time interval between the misconduct and its public announcement varies from case to case.

3.2 Main Results

Table 4 documents our main results associated with Equation 1. We standardize all employee ratings, except for the indicator variable "recommend or not", to have a mean of zero and one standard deviation to facilitate comparison. Column 1 presents a baseline specification containing individual controls and firm and time fixed effects, illustrating that the years following the public announcement of misconduct are associated with a 0.32 standard deviation decline in an employee's overall rating of the company. Inclusion of individual-level controls and firm fixed effects purge time-invariant variation in firm performance that could be correlated with announcement of the financial misconduct. However, there could be time-varying negative shocks concurrent with the misconduct disclosure and also affect employee perceptions. To address the potential for time-

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varying state-level economic shocks that happen during the same period as public announcement of financial misconduct, column 2 controls for state × year fixed effects; the gradients remain identical. Column 3 addresses a similar concern, which is the potential concurrent time-varying industry-level economic shocks, by using industry × year fixed effects. Our estimated coefficients across these specifications are statistically indistinguishable from one another.

[Insert Table 4]

Dechow et al. [1996] discuss how the cost of capital dramatically rises following the public announcement of earnings manipulations. To overcome potential mechanical and productivity-related identification concerns, we control sequentially for notable time-varying firm economic characteristics, including return on assets (column 4), Tobin's q (column 5), market-to-book ratio (column 6), and all of these characteristics together (column 7). The results remain remarkably robust and statistically significant across each specification. While we recognize that the inclusion of these variables is susceptible to the "bad control" critique discussed by Angrist and Pischke [2009] because they may also be affected by the public announcement of financial misconduct, we simply present these results as further evidence that we are not capturing the effects of the market shock per se.

Another identification concern is that misconduct might be reviewed much earlier than it is formally announced in some cases. In these cases, employees would know about the misconduct and react before the formal announcement. However, the issue, even if it exists, would attenuate our effects because employees would react to the public revelation when $1[t \geq MisconductAnnouncement]_{ft} = 0$.

[Insert Table 5]

While our baseline results focus on overall employee ratings, Glassdoor also provides a range of

specific dimensions about firm ratings that are useful to examine in greater detail. These ratings include career opportunities, compensation and benefits, work-life balance, senior management, and culture and values. Table 5 presents the results for other ratings by using the same specification as in the last column in Table 4. We find a systematic negative association between the public announcement of misconduct and each company rating. However, our effects are the strongest for employee ratings of career progression, benefits, and leadership. These ratings drop by approximately 0.35 to 0.40 sd after the announcement of misconduct. Although most of the misconduct that AAERs detect is not so severe, employees may reasonably worry about losing their jobs and having difficulty finding new ones. The negative association with benefits is consistent with misconduct affecting a firm's ability to provide compensation packages that are as high quality as previously, potentially because of a decline in credit supply. Moreover, similar to Graham et al. [2017] showing that corporate default is associated with a large decline in employee compensation and career prospects, we find a decline in the presence of these smaller-scale firm shocks. Finally, the decline in employee ratings of leadership is consistent with the fact that employees attribute the misdeed to the leader. Nonetheless, we also find negative associations with measures of work-life balance (column 4), corporate culture (column 5), and an indicator for whether the employee recommends the company (column 6).

3.3   Heterogeneous Treatment Effects

Having discussed our main results for all workers, we now examine several dimensions of heterogeneity that not only provide interesting insights, but also help validate our argument about retention and attraction of employees. Table 6 presents the results. We use the same specification as in Column (7), Table 4. In Panel A, we divide the sample into two groups based on employees having a college degree or not. We find much stronger negative effects for individuals with low

education. Given that these lower-skilled workers have less ability to differentiate themselves in the marketplace, the announcement of financial misconduct may further undermine their bargaining power in the labor market because working at a company that engaged in earnings manipulation is not a positive signal. Moreover, the fact that we find these workers are more adversely affected counters the concern that we are simply capturing other negative time-varying shocks to the firm. In particular, since firms tend to re-organize and upskill during negative productivity periods [Hershbein and Kahn, 2018], the lower-skilled workers who remain are likely to be positively selected and therefore more likely to report higher (not lower) ratings.

[Insert Table 6]

We also find much stronger effects for individuals with shorter employee tenure. One explanation for this result is that these workers have less work experience and are in a more disadvantaged situation on the job market. Thus, they are likely to be more responsive to any firm-level shock.

In untabulated results, while no significant effects are found among employees in the headquarters states, we find significant effects among employees *not* in the headquarters states. However, the chi-square test shows that the difference in effects on these two groups is not statistically significant. While this result is counterintuitive since employees in the headquarters are more likely to be higher skilled and work in managerial positions, it may be precisely for this reason that they are less responsive – in particular, because they may already know about the fraudulent practices. To validate our hypothesis, we ran additional diagnostics in Section 5 and found that employee ratings among those at the headquarters respond more elastically during the period when financial misconduct is actually committed, but appear to internalize the private information by the time the event is made public. Because the chi-square test is not statistically significant, we cannot draw a conclusion that employees outside the headquarters states respond more strongly to the financial misconduct announcement. We do not find systematic differences among male versus female,

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younger versus older, and regular versus non-regular workers (e.g., part time or freelancer).

4   Potential Economic Channels

In this section, we discuss a few potential economic channels behind the decline of employee satisfaction after the public announcement of financial misconduct. First, penalties and litigation settlement costs follow the announcement of financial misconduct. As a consequence, the stock return decreases and financial distress increases shortly after the announcement, which may result in employees being concerned about the firm performance. Second, after financial misconduct being caught and publicly announced, a firm may adjust the labor investment. For example, Kedia and Philippon [2009] show that when the misreporting is detected, firms shed labor and capital. Therefore, employees would be concerned about decreased compensation and the higher probability of being fired. Last, firm reputation is damaged after the public disclosure of financial misconduct. This damage would adversely affect a firm's long-term performance. Companies care about how the public and the media perceive their brands, which represents an important subset of intangible capital (e.g., Barth et al. [1998]). Thus, employees may adjust their ratings downward because of the damaged reputation.

We conduct analysis to determine the primary channel driving the patterns documented in the previous sections. First, since litigation costs are generated shortly after the announcement of financial misconduct, the subsequent stock return decreases and the reaction of employees should happen within a short window after the disclosure if litigation costs are the primary factor. To test this possible short-term channel, we only keep observations before the announcement of misconduct and those in the announcement year. We use the following regression:

$$y_{ift} = \gamma 1[t = MisconductAnnouncement]_{ft} + \beta D_{it} + \phi X_{ft} + \zeta_f + \lambda_t + \epsilon_{ift}$$

where y_{ift} denotes employee ratings and $1[t = MisconductAnnouncement]_{ft}$ denotes an indicator for the year of the announcement of misconduct. Table 7 presents the results. We find that although employees start to adjust their ratings downward right after the announcement of misconduct, the magnitude of the changes is much smaller than those in Table 4, which documents the average effects in the long run. For example, the employee overall rating becomes 0.21 sd lower in the year that a firm announces the misconduct. Afterward, the level of employee satisfaction continues to decrease, and it is on average 0.32 sd lower than the level before the announcement of misconduct in the long run. In summary, the changes of employee ratings in Table 7 imply that litigation costs may affect employees' perception but are unlikely to be the primary channel. Otherwise, we would not find continued decrease in employees' ratings a few years after misconduct disclosure.

[Insert Table 7]

Since a firm's stock return would crash shortly after the misconduct disclosure, another related alternative explanation of the patterns documented in previous sections is that employees' negative responses to the financial misconduct may simply be driven by stock market fluctuation. To test this possibility, we first add the yearly cumulative stock return in Equation 1. The untabulated results show little change in the coefficients of $1[t \geq MisconductAnnouncement]_{ft}$ after controlling for the yearly cumulative stock return. Moreover, we use the following regression to examine whether the yearly cumulative stock return is positively associated with employees' perceptions of firms and managers.

$$y_{ift} = \gamma SizeAdjCumRet_{ft} + \beta D_{it} + \phi X_{ft} + \zeta_f + \lambda_t + \epsilon_{ift} \tag{2}$$

where $SizeAdjCumRet_{ft}$ denotes the yearly size-adjusted cumulative stock return. For size

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adjustment, we classify firms into three groups based on their market capitalization in June of the previous year and match firm raw daily returns with daily size portfolio returns[9]. Size-adjusted abnormal stock returns are generated as follows:

$$\text{size-adjusted return} = \text{raw return} - \text{size portfolio return.}$$

Table 8 shows the results. Surprisingly, the yearly cumulative stock return is slightly *negatively* associated with employees' perceptions of firms and managers. Column (1) shows that a 100% increase in the yearly cumulative stock return is associated with a 0.036 standard deviation drop in employees' overall rating for firms.[10] This finding provides the evidence that employers' stock return is not the primary factor driving the employee ratings. Based on both untabulated results and results shown in Table 8, our findings are unlikely to be mainly driven by employees' responses to the negative stock market return.

[Insert Table 8]

Furthermore, we investigate the second potential economic channel, whether changes in employee satisfaction are mainly affected by the earnings decline after the announcement of misconduct. We first use the same specification as in Equation 1 but with salary as the dependent variable, and we do not find a significant coefficient on $1[t \geq MisconductAnnouncement]_{ft}$. This outcome indicates that employee earnings do not decline in the long run after a misconduct announcement. Thus, it is unlikely to be the main driver of the decrease in employee ratings. Next, we use the following specification to document the effects of misconduct announcements on salary in the short

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[9]We download the daily size portfolio returns from Professor Ken French's website. The website link is: `http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html`

[10]Since we only document an association in Table 8 and the magnitude of the coefficients is small, we cannot draw any conclusion on whether stock return increase will decrease employee ratings.

run:

$$y_{ift} = \gamma 1[MisconductAnnouncement \leq t \leq MisconductAnnouncement + 2]_{ft}$$
$$+ \beta D_{it} + \phi X_{ft} + \zeta_f + \lambda_t + \epsilon_{ift}$$

(3)

where $1[MisconductAnnouncement \leq t \leq MisconductAnnouncement + 2]_{ft}$ denotes an indicator

for years within two years following the misconduct announcement. Other variable definitions are

the same as in Table 4.

According to the results in Table 9, an announcement of misconduct has a negative impact on

employee salary for some groups in the short run. Employees with low education or short work

tenure and those who are non-regular workers, younger than 30 years old, and working outside a

firm's headquarters' state suffer negative effects on salary within two years following a misconduct

announcement. This finding is consistent with the report by Kedia and Philippon [2009] that, after

the misconduct is detected, firms shed labor and capital. Employees belonging to these groups

have lower bargaining power in the labor market. Thus, they suffer more from discovery of the

misconduct and experience wage declines after its announcement.

[Insert Table 9]

Based on the analysis in this section, a firm's litigation costs and earnings decline may lead

to employees adjusting their ratings downward within a short window after the announcement of

misconduct. However, the firm reputation damage is likely to be the primary economic channel

in the long run because it is the only factor, among the three potential channels, that impacts

a firm for a long period of time. Chakravarthy et al. [2014] show that fraud firms take actions

to repair their reputations after serious accounting restatements, which also supports our findings

that financial misconduct hurts a firm's reputation and its employees' perceptions of the firm and

its managers.

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5 Employees' Perception during the Misconduct Period

We also considered whether financial misconduct has a direct effect on employee ratings during the years in which it is being committed. Green et al. [2019] document that rank-and-file employees possess valuable information. They find that firms experiencing improvements in employer ratings significantly outperform firms with declines. Employees likely have private information during the misconduct period and adjust their ratings at that time. We now modify our baseline specification as follows and test the hypothesis that employees have private information during the misconduct committing period:

$$y_{ift} = \gamma 1[t = Misconduct]_{ft} + \beta D_{it} + \phi X_{ft} + \zeta_f + \lambda_t + \epsilon_{ift} \tag{4}$$

where $1[t = Misconduct]_{ft}$ denotes an indicator for the years that a firm engages in misconduct. Other variable definitions are the same as those in Equation 1.

Table 10 documents the results. We add the same individual-level controls, firm-level controls, and fixed effects as those in Column (7), Table 4. Column (1) finds that employees' overall rating drops 0.20 sd during the misconduct period. Based on the results shown in the rest of the table, employees lower their ratings in every aspect during the period when the firm is committing misconduct. The results are consistent with the findings in Ji et al. [2017], which focuses on whether financial reporting risk is associated with job satisfaction and company culture. Based on a comparison of the coefficient of $1[t = Misconduct]_{ft}$ in Column (1), Table 10 to that of $1[t \geq MisconductAnnouncement]_{ft}$ in Table 4, we find that employees' response to misconduct announcement is much stronger than their response when misconduct is being committed. This finding has one implication. Since many employees are not aware of the misconduct events until they become public, employee ratings should be less responsive during the years the misconduct is

actually being committed. Only a subset of individuals, which we examine subsequently, are likely to have private information and know about the internal politics.

[Insert Table 10]

We next examine several dimensions of heterogeneity to help explain the finding in Table 10 and provide additional evidence. Table 11 presents the results. First, we find strong negative effects for employees working in the state in which the headquarters is located. During the misconduct period, their overall ratings decrease by about 1.89 sd. In contrast, employees in other states slightly increase their ratings. Employees in the headquarters state are plausibly more likely to acquire private information about firms. In addition, they are also more likely to have higher positions in the company. Therefore, they adjust their ratings based on more accurate information. Employees in other places, however, are more likely to rely on public news and financial reports to assess firm conditions. Kedia and Philippon [2009] demonstrate that executives appear to over-invest in capital and over-hire employees to bolster the perception of the firm during the misconduct period. Employees in other states may slightly increase their perception based on public information. We also find strong negative effects for older employees. They decrease the overall ratings by about 0.75 sd when firms commit financial misconduct. Similar to employees working in the same state as the headquarters, older employees are more likely to hold higher positions in the company and have private information during the misconduct period.

In the untabulated results, we find significant negative effects (a drop of 0.36 sd) for individuals with higher education (a bachelor's or higher degree), but no significant effects on employees with low education. Since the chi-square test is not statistically significant, we cannot conclude that employees with higher education respond more strongly to financial misconduct being committed. However, the significant effects in the high education group still reinforce the discussion above, which is counter to the finding after misconduct announcement. Employees with higher education

are more likely to have higher positions in the company. During the periods of misconduct, they are more likely to have private information about firms' true performance and condition. As a result, these employees react to the misconduct while other employees remain unaware of it. We do not find any systematic differences along other dimensions, such as gender and regular versus non-regular workers (e.g., part time or freelancer).

[Insert Table 11]

6 Implications for Predicting Financial Misconduct

The previous section documents a negative association between financial misconduct and employee ratings in the pre-announcement period. We now examine whether information on employee ratings can be used to predict misconduct. For example, if we see a deterioration of employee ratings, conditional on firm fundamentals, can we then predict whether a firm is engaging in earnings manipulations? Our paper builds upon a large literature that has not only used financial (Beneish [1999]; Summers and Sweeney [1998]; Nieschweitz et al. [2000]) and corporate governance measures (Dechow et al. [1996]; Beasley [1996]; Farber [2005]) to predict misconduct, but also non-financial measures [Brazel et al., 2009].

We follow Dechow et al. [2010] to conduct the prediction analysis. We collapse our sample into firm quarter-level data and keep the mean and standard deviation of all variables for each firm quarter. Panel A, Table 12 documents logistic models for the determinants of the misconduct by using the following specification:

$$AAER_{ft} = \gamma EmployeeRatings_{ft} + \beta EmployeeRatingsSD_{ft} + \phi X_{ft} + \epsilon_{ft}$$

Although financial irregularities can raise a number of warning flags for potentially deceptive

corporate behavior, significant residual variation remains to be explained. For example, starting with column (1), which contains the usual financial characteristics seen in prior work, we obtain an R-squared of 0.062. However, when we include our employee rating variables career opportunity, compensation benefit, senior leadership, and work-life balance, and their standard deviations, the R-squared jumps to 0.162. We find that ratings of benefits and leadership are negatively associated with the incidence of the misconduct. The coefficients on career perceptions and work-life balance are positive but insignificant, which may reflect the presence of some multicollinearity.

These specifications, however, may capture potentially spurious information on employee ratings when we average across all workers within an organization because individuals who are more closely connected to management are likely to have private information on the incidence of misconduct. Turning to Columns (3) and (4), we restrict our sample to individuals in the state where their corporate headquarters is located. We again find a large jump in the R-squared through the inclusion of employee rating variables, as well as statistically significant and economically reasonable coefficients on each of the dimensions.[11] This result shows that the increase in R-squared is concentrated precisely within the group that is likely to have access to the most information.

[Insert Table 12]

In Panel B we further examine the quality of models with and without including employee rating variables. We analyze the predicted probabilities that the model assigns to each firm quarter. First, we get the predicted values for each firm quarter by plugging each firm quarter's characteristics and average ratings into the model and using the estimated coefficients to generate the predicted value. Next, we obtain the predicted probability:

$$Probability = \frac{\exp\left(PredictedValue\right)}{1 + \exp\left(PredictedValue\right)}$$

[11]Columns (3) and (4) show no variation of the equity or debt issuance dummy variable, so it is subsumed.

Finally, we divide the probability by the unconditional expectation of misstatement to calculate our ratings-based F-score[12]. The unconditional expectation is equal to the number of misstatement firms divided by the total number of firms. In Panel B we rank firm-years into four portfolios based on the magnitude of their F-scores. We report the frequency with which misconduct and non-misconduct firm quarters fall into each quartile and the minimum F-score of firm quarters in each quartile. If the model with employee ratings (Model 2 hereafter) does a better job of identifying misconduct firm quarters than the model with only financial characteristics (Model 1 hereafter), we expect misconduct firms to be clustered more in the fourth portfolio when we use Model 2. The results for Model 1 indicate that 61.54% of misconduct firms are in quartile 4, compared to the expected level of 25%. Model 2 adds employee ratings variables to the variables in Model 1, and 84.62% of misconduct firms are in quartile 4. The results clearly show that Model 2 performs much better than Model 1 in predicting the financial misconduct.

In Panel C of Table 12, we evaluate the sensitivity of both models and determine Type I and Type II error rates for an F-score cutoff of 1.00. Model 1 correctly classifies 8 of the 13 firm quarters (sensitivity equal to 61.54%), while Model 2 correctly classifies 11 of the 13 firm quarters (sensitivity equal to 84.62%). A Type II error occurs when the model incorrectly classifies a misconduct firm as a non-misconduct firm. The Type II error rate is 38.46% (5 divided by 13) for Model 1 and 15.38% (2 divided by 13) for Model 2. A Type I error occurs when our model incorrectly classifies a non-misconduct firm quarter as a misconduct firm quarter. For an F-score cutoff of 1.00, the Type I error rate is 16.64% (891 divided by 5,356) for Model 1 and 18.29% (954 divided by 5,217) for Model 2. In summary, Model 2, relative to Model 1, increases the sensitivity, decreases the Type II error rate substantially, and has a similar Type I error rate.

We caution that these results do not imply that regulators should closely monitor Glassdoor

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[12]As Dechow et al. [2010] state in their paper, an F-score of 1.00 indicates that the firm has the same probability of misconduct as the unconditional expectation. F-scores greater than one indicate higher probabilities of misconduct than the unconditional expectation.

ratings; after all, these ratings can be manipulated and even strategically timed. Rather, our point is that there is an emerging set of non-financial measures around employee satisfaction and beliefs about firm prospects that are likely to play a role in anticipating potential fraudulent behavior. In their totality, these measures can be a heuristic for proactively managing such behavior.

7   Additional Tests

7.1   Less Severe Accounting Misstatements

In this section, we report additional tests. First, we conduct a placebo test by focusing on less-severe accounting misstatements. Although both AAERs and Audit Analytics Restatement data are sources of information on firms' financial misconduct, AAERs are public letters issued by the SEC indicating enforcement issues and usually emphasize more visible problems that were not corrected by a restatement. In contrast, Audit Analytics Restatement data include all restatements filed after January 2000 for all publicly traded companies listed on one of the main US exchanges. Restatements in Audit Analytics can be the result of benign errors as well as intentional misrepresentation. We follow Armstrong et al. [2013] to identify intentional restatements and restrict our sample to only those restatements classified by Audit Analytics as relating to fraud, misrepresentation, or an investigation by the Public Company Accounting Oversight Board (PCAOB). Most of these misstatements attract the attention of research analysts but not that of the general public. Therefore, they are not severe enough to hurt firm reputation. If employees' response to public announcement of AAER cases is mainly driven by damaged firm reputation, we should not find significant effects after restatement cases tracked in Audit Analytics Restatement data. Moreover, we divide restatement cases into two separate groups. One with non-positive yearly size-adjusted cumulative stock return in the release year and the other with positive yearly size-adjusted cumu-

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lative stock return in the release year. If employees only care about the stock return performance but not the firm reputation, we expect to find that employees perceptions' drop when the yearly size-adjusted cumulative stock return is negative, even though these cases are not severe enough to hurt firm reputation.

[Insert Table 13]

Table 13 presents the results of the placebo test. In Panel A, we use restatements with non-positive yearly size-adjusted cumulative stock return and the control sample. We do not find significant effects on any employee ratings. In Panel B, we only use restatements with positive yearly size-adjusted cumulative stock return to conduct the analysis. The coefficients of interest become negative but are still not statistically significant. The results in Table 13 are consistent with our argument that employee long-term reaction to the announcement of a firm's financial misconduct is mainly driven by the dampened firm reputation.

7.2 Alternative Sample Selection

When using Equation 1 to conduct the main tests we restrict the sample to observations with non-missing values for all dependent and independent variables. We drop a large proportion of the raw data because many observations have missing values for our controls (e.g., age, education, and gender). We do so because these controls are important for dealing with individual heterogeneity in employee ratings. However, we may be discarding relevant information if these observations are missing at random. We conduct a robustness check by only restricting our sample to individuals who report basic personal information such as age, gender, and education and keeping individuals who do not report other information such as length of employment. Then, we create an indicator denoting whether the control variable is missing and replace the missing value with a value of -99.[13]

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[13]Any value except zero works here. The indicator variable would capture the effects of the sample with missing values separately. Thus the replaced value will not affect the main coefficient.

Table 14 presents the results from alternative sample selection. Column (1) shows that after misconduct announcement, the employees' average overall rating for firms decreases around 0.13 sd. The coefficient is still statistically significant, although the magnitude is smaller than in Table 4. One reason for this outcome could be that these observations contain greater measurement error because the respondents are not incentivized to report truthfully via the "give-to-get" model.

The results of other ratings nonetheless share a similar pattern. Four of seven ratings are significantly affected by a misconduct announcement, although the magnitudes are smaller. In this sense, even under the assumption that these missing values are missing at random and should legitimately be included in our baseline sample, the main result that the misconduct is negatively associated with employee ratings (and most of the specific dimensions) continues to be robust.

8 Conclusion

Using novel micro-data from Glassdoor, we empirically examine how public announcement of financial misconduct affects employees' perceptions of firms and managers and whether employees' perceptions are helpful for predicting financial misconduct. Our empirical strategy exploits variation in employee ratings before versus after the public announcement of the misconduct, conditional on an array of time-varying individual-level and firm-level covariates. Our baseline specification suggests that overall company ratings decline by 0.32 s.d. following the announcement of misconduct, driven in large part by declines in ratings on career advancement opportunities, compensation and benefits, and perception of senior leadership. We also examine the effects for an array of sub-samples, finding, for example, that the decline in ratings is largest for less-educated employees and those who work outside a firm's headquarters' state.

Next, we discuss the potential economic channels behind the employees' ratings decline after the announcement of misconduct. The first potential channel is the litigation cost and related stock return crash. Another is the reduced compensation and higher risk of layoff channel. The last channel is the long-term damaged reputation channel. We conduct analyses to determine which channel is the main driving force. We show that although employees decrease their ratings in the year of the announcement of misconduct, the magnitude is small and the ratings continue to decrease afterward. Moreover, employee ratings do not have a positive association with yearly abnormal stock return. In addition, we find that, after disclosure of misconduct, employee salaries are not affected in the long run, though in the short run, employees with lower bargaining power in the labor market experience wage declines. Based on the above analyses, litigation cost, stock return drop, and reduced compensation may affect employee satisfaction in the short run after disclosure of misconduct. However, the reputation channel is likely to be the primary driving force in the long run.

Furthermore, we document the effects of financial misconduct on employees' perception of their firms during the years of the misconduct period. We find that employees' overall rating drops by 0.20 sd. These effects are concentrated among older employees and employees working in the state where the headquarters is located. These employees are more likely to hold managerial positions, which suggests that they are exposed to more private information while the misconduct is taking place.

We finally investigate whether employee ratings are helpful in predicting when firms engage in misconduct. After adding the employee rating variables, the prediction model's explanatory power increases, the Type II error rate sharply decreases, and the sensitivity of the model increases. In summary, the prediction model with employee rating variables performs better than the model that only includes the usual financial characteristics.

While our empirical results highlight a tight link between financial misconduct and employee satisfaction, our results have broader ramifications for the importance of human capital in organizations. Especially given anecdotal evidence about the increasing importance of human capital in determining firm value, our paper provides new evidence of the underlying determinants of employee perceptions about a company and the corresponding effects on attracting and managing human capital.

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Appendix A   Variable Definitions

Dependent variables:

Overall rating is employees' overall ratings for the firms.

Career opportunity is employees' ratings for their career opportunities in the current firms.

Compensation benefit is employees' ratings for the benefit (compensation other than salary) they get from the firms.

Senior leadership is employees' ratings for the capability of the senior leadership in the firms.

Work-Life balance is employees' ratings for their work-life balance.

Culture value is employees' ratings for the firms' corporate culture.

Recommend is a dummy variable that equals one when an employee thinks he or she will recommend working for the current employer to others.

Size adjusted stock market cumulative return is the yearly stock market cumulative return. It is generated by using the CRSP daily return data.

Base pay is employees' reported base pay and it is normalized to 1/1/2017 dollars using the CPI.

Dependent variables:

ROA is defined as the return on asset. It is calculated as earnings before interest (Compustat variable ebitda) / total asset (Compustat variable at)

Tobin's q is calculated as $(at + (csho * prcc_f) - ceq)/at$ by using Compustat data. at is the total asset; $csho$ is the closing stock price; $prcc_f$ is the number of shares outstanding (in millions of shares) on the balance sheet date; ceq is common/ordinary equity - total.

Market to book ratio is calculated as $mkvalt/(bkvlps * csho)$ by using Compustat data. $mkvalt$ is the market value - total; $bkvlps$ is the book value per share; $csho$ is the closing stock price.

Total accruals is calculated as $\Delta(Common\ equity + Noncontrolling\ interest - Cash)/Average$

assets by using Compustat data.

Change in receivable is calculated as $\Delta Net\ accounts\ receivable/Average\ assets$ by using Compustat data.

Change in inventory is calculated as $\Delta Inventory/Average assets$ by using Compustat data.

Percentage of soft assets is calculated as $(Total\ assets - Cash - Net\ PP\&E)/Total\ assets$ by using Compustat data.

Change in cash sales is calculated as $((Sales_t - \Delta Net\ accounts\ receivable_t) - (Sales_{t-1} - \Delta Net\ accounts\ receivable_{t-1}))/(Sales_{t-1} - \Delta Net\ accounts\ receivable_{t-1})$ by using Compustat data.

Change in return on assets is calculated as $\Delta(Net\ income\ from\ continuous\ operations/Average\ assets)$ by using Compustat data.

Equity or debt issuance is a dummy variable that equals one if the firm issues equity or debt during the period, and zero otherwise.

Employee characteristics:

Female is a dummy variable that equals one if an employee is a women and zero if an employee is a man; otherwise, it is recorded as missing.

Age is an employees' age.

Education = College is a dummy variable that equals one if an employee's highest education is college and zero if an employee's education is higher or lower than college; otherwise, it is recorded as missing.

Education > College is a dummy variable that equals one if an employee's highest education is higher than college and zero if an employee's education is lower than or equal to college; otherwise, it is recorded as missing.

Regular worker is a dummy variable that equals one if an employee is a regular full-time worker and zero if an employee is part time, contract, intern, freelance, or other type of worker; otherwise,

it is recorded as missing.

Length of employment is the year of employment in the current firm.

Headquarters state is a dummy variable that equals one if an employee works in the state in which the firm's headquarters is located, and equals zero if an employee works in a state that is different from the state in which the firm's headquarters is located; otherwise, it is recorded as missing.

Figure 1: Glassdoor Company Review Questionnaire

This figure shows the company review questionnaire from the Glassdoor website.

Figure 2: Timeline

This figure shows the timeline of misconduct committing years, the misconduct announcement year, and the ways we define the key independent variables.

Table 1: Summary Statistics of Glassdoor Ratings and Base Pay

This table presents the mean and observations of Glassdoor ratings and base pay separately for the full sample and the regression sample. We only keep observations reporting annual pay, not monthly or hourly pay, when calculating the average of the base pay.

| | Average Ratings | | | | | | | |
	Overall Rating	Career	Benefit	Leadership	Work Life	Culcure	Recommend	Base Pay
Full Sample	3.25	3.03	3.16	2.89	3.24	3.24	0.58	81682.71
Obs.	3,690,829	3,314,351	3,313,011	3,276,692	3,317,652	2,986,682	3,105,332	2013474
Regresssion Sample								
Full Regression Sample	3.31	3.14	3.28	2.89	3.23	3.32	0.62	85841.71
Obs.	138,779	133,845	133,748	132,725	133,743	133,168	129,485	163,977
AAER Sample	3.26	3.13	3.25	2.82	3.21	3.22	0.6	95045.55
Obs.	20,210	19,519	19,504	19,362	19,495	19,404	18,895	25,604
Non AAER Sample	3.32	3.14	3.29	2.91	3.23	3.34	0.62	84138.67
Obs.	118,569	114,326	114,244	113,363	114,248	113,764	110,590	138,373

Table 2: Summary Statistics of Glassdoor Reviewers

This table presents the summary statistics of Glassdoor reviewers' demographic information (education, age, and gender) and a few job-related variables (employment status, whether working in the headquarters state). The first two columns present the summary statistics for reviewers in the full sample. The next four columns present summary statistics for reviewers in the regression sample.

| | | | Regression Sample | | | |
| | Full Sample | | AAER Sample | | Non AAER Sample | |
	# of Obs.	Pct	# of Obs.	Pct	# of Obs.	Pct
Education						
High School	142,222	11.37	2,578	12.76	15,828	13.35
Associate	45,479	3.64	585	2.89	3,970	3.35
Bachelors	805,591	64.41	12,538	62.04	78,759	66.42
Masters	213,154	17.04	3,868	19.14	2,081	1.76
MBA	29,784	2.38	457	2.26	17,199	14.51
JD	3,808	0.3	42	0.21	205	0.17
MD	914	0.07	10	0.05	41	0.03
PhD	9,860	0.79	132	0.65	486	0.41
Age						
< 25	261,217	20.65	3,880	19.2	27,779	23.43
25 to 29	287,916	22.76	3,989	19.74	26,712	22.53
30 to 39	355,822	28.13	5,602	27.72	32,098	27.07
40 to 49	215,053	17	4,075	20.16	19,315	16.29
50 to 59	117,731	9.31	2,218	10.97	10,466	8.83
>= 60	27,106	2.14	446	2.21	2,199	1.85
Gender						
Female	816,637	45.29	7,288	36.06	49,544	41.78
Male	986,297	54.71	12,922	63.94	69,025	58.22
Employment Status						
Regular	1,747,387	76.63	15,206	75.24	85,328	71.96
Part Time	327,220	14.35	3,211	15.89	23,634	19.93
Contract	99,056	4.34	710	3.51	4,180	3.53
Intern	93,612	4.11	1,067	5.28	5,287	4.46
Freelance	12,894	0.57	16	0.08	139	0.12
Other	36	0	0	0	1	0
In the Headquarters State						
Yes	-	-	6,698	33.14	35,640	30.06
No	-	-	13,512	66.86	82,929	69.94

Table 3: Summary Statistics of AAERs

This table presents the frequency of AAERs by year. We drop duplicate observations that have the same company name and year information.

Year	# of AAERs	Percentage
2000	135	8.08
2001	145	8.68
2002	116	6.94
2003	107	6.4
2004	82	4.91
2005	65	3.89
2006	44	2.63
2007	40	2.39
2008	30	1.8
2009	33	1.97
2010	27	1.62
2011	15	0.9
2012	11	0.66
2013	5	0.3
Total	1,671	100

Table 4: Effects of Financial Misconduct Announcement on Employees' Overall Ratings

This table presents regression outputs using the following specification.

$$y_{ift} = \gamma 1[t >= MisconductAnnouncement]_{ft} + \beta D_{it} + \phi X_{ft} + \zeta_f + \lambda_t + \epsilon_{ift}$$

where y_{ift} denotes employees' overall rating for the firms, $1[t >= MisconductAnnouncement]_{ft}$ denotes an indicator for the years following the public announcement of the misconduct, D_{it} denotes individual-level controls including gender, age, education, regular worker indicator, length of employment, headquarters state indicator), X_{ft} denotes firm-level financial controls like ROA, Tobin's q and market to book ratio, ζ and λ denote firm and time (year and month) fixed effects. We cluster standard errors at the firm level to allow for arbitrary degrees of autocorrelation in shocks within the firm over time (Bertrand et al. [2004]). Please refer to Appendix A for the construction of each variable. We add individual-level controls, year and month fixed effects, and firm fixed effects in all columns. We standardize overall rating to have zero mean and one standard deviation. In Column (2), we add state-level time trend controls. In Column (3) we add state fixed effects and industry-level time trend controls. In Column (4)- (6) we add ROA, Tobin's q, and market to book ratio separately. In the last column, we add ROA, Tobin's q, and market all together.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				Overall Rating			
1 [t >= Misconduct Announcement]	-0.321***	-0.321***	-0.312***	-0.322***	-0.319***	-0.316***	-0.315***
	[0.105]	[0.105]	[0.106]	[0.105]	[0.105]	[0.105]	[0.106]
female	-0.041***	-0.041***	-0.043***	-0.041***	-0.042***	-0.041***	-0.041***
	[0.007]	[0.007]	[0.007]	[0.008]	[0.008]	[0.008]	[0.008]
Age	-0.009***	-0.009***	-0.009***	-0.009***	-0.009***	-0.009***	-0.009***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Education = College	0.045***	0.045***	0.045***	0.045***	0.043***	0.045***	0.045***
	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]
Education > College	0.045***	0.045***	0.047***	0.045***	0.043***	0.046***	0.046***
	[0.010]	[0.010]	[0.010]	[0.010]	[0.010]	[0.011]	[0.011]
Regular Worker	-0.132***	-0.132***	-0.135***	-0.132***	-0.130***	-0.129***	-0.129***
	[0.014]	[0.014]	[0.014]	[0.015]	[0.015]	[0.015]	[0.015]
Length of Employment	0.007***	0.007***	0.007***	0.007***	0.007***	0.007***	0.007***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Headquarters State	0.050***	0.050***	0.067***	0.052***	0.052***	0.053***	0.054***
	[0.011]	[0.011]	[0.010]	[0.011]	[0.011]	[0.011]	[0.011]
ROA				-0.066*			-0.166
				[0.035]			[0.167]
Tobin's q					0.018*		0.035***
					[0.011]		[0.009]
Market to Book Ratio						-0.000	-0.000
						[0.000]	[0.000]
Year, Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State * Year FE	No	Yes	No	No	No	No	No
State FE	No	-	Yes	No	No	No	No
Industry * Year FE	No	No	Yes	No	No	No	No
Observations	138,779	138,779	138,779	138,074	134,904	130,045	129,801
R-squared	0.133	0.135	0.135	0.133	0.132	0.134	0.134

Table 5: Effects of Financial Misconduct Announcement on Employees' Other Ratings

This table presents regression outputs using the following specification.

$$y_{ift} = \gamma 1[t >= Misconduct Announcement]_{ft} + \beta D_{it} + \phi X_{ft} + \zeta_f + \lambda_t + \epsilon_{ift}$$

where y_{ift} denotes our individual-level outcome of interest, $1[t >= Misconduct Announcement]_{ft}$ denotes an indicator for the years following the public announcement of the misconduct, D_{it} denotes individual-level controls including gender, age, education, regular worker indicator, length of employment, headquarters state indicator), X_{ft} denotes firm-level financial controls like ROA, Tobin's q, and market to book ratio, ζ and λ denote firm and time (year and month) fixed effects. We cluster standard errors at the firm level to allow for arbitrary degrees of autocorrelation in shocks within the firm over time (Bertrand et al. [2004]). Please refer to Appendix A for the construction of each variable. The dependent variables in each column are career opportunity, compensation benefit, senior leadership, work-life balance, culture value, and recommend, respectively. We standardize all ratings except for recommend to have zero mean and one standard deviation.

VARIABLES	(1) Career	(2) Benefit	(3) Leadership	(4) Work Life	(5) Culture	(6) Recommend
1 [t >= Misconduct Announcement]	-0.398***	-0.367***	-0.345***	-0.288**	-0.258**	-0.143***
	[0.143]	[0.053]	[0.092]	[0.137]	[0.103]	[0.051]
female	-0.029***	0.012	-0.039***	-0.059***	-0.023***	-0.022***
	[0.008]	[0.008]	[0.008]	[0.008]	[0.007]	[0.004]
Age	-0.010***	-0.003***	-0.008***	-0.009***	-0.009***	-0.004***
	[0.000]	[0.001]	[0.000]	[0.001]	[0.001]	[0.000]
Education = College	0.012	-0.001	0.053***	0.061***	0.047***	0.021***
	[0.010]	[0.011]	[0.009]	[0.010]	[0.008]	[0.004]
Education > College	-0.019	-0.064***	0.055***	0.108***	0.036***	0.023***
	[0.014]	[0.015]	[0.012]	[0.016]	[0.012]	[0.005]
Regular Worker	0.039**	0.102***	-0.176***	-0.269***	-0.106***	-0.057***
	[0.018]	[0.022]	[0.015]	[0.014]	[0.014]	[0.006]
Length of Employment	0.002**	0.007***	-0.003***	0.001	0.003***	0.002***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.000]
Headquarters State	0.078***	0.021	0.069***	0.112***	0.046***	0.027***
	[0.013]	[0.013]	[0.012]	[0.017]	[0.012]	[0.005]
ROA	0.038	-0.032	0.061	-0.224*	-0.078	-0.009
	[0.148]	[0.165]	[0.152]	[0.130]	[0.165]	[0.083]
Tobin's q	0.038***	0.025***	0.050***	0.010	0.037***	0.015***
	[0.007]	[0.007]	[0.008]	[0.007]	[0.008]	[0.004]
Market to Book Ratio	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Year, Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	125,148	125,068	124,103	125,065	124,567	121,086
R-squared	0.102	0.205	0.110	0.134	0.139	0.102

Table 6: Effects of Financial Misconduct Announcement on Employees' Ratings: Heterogeneous Effects

This table presents regression outputs using the following specification.

$$y_{ift} = \gamma 1[t >= MisconductAnnouncement]_{ft} + \beta D_{it} + \phi X_{ft} + \zeta_f + \lambda_t + \epsilon_{ift}$$

where y_{ift} denotes employees' overall rating for the firms, $1[t >= MisconductAnnouncement]_{ft}$ denotes an indicator for the years following the public announcement of the misconduct, D_{it} denotes individual-level controls (including gender, age, education, regular worker indicator, length of employment, headquarters state indicator), X_{ft} denotes firm-level financial controls like ROA, Tobin's q and market to book ratio, and ζ and λ denote firm and time (year and month) fixed effects. We cluster standard errors at the firm level to allow for arbitrary degrees of autocorrelation in shocks within the firm over time (Bertrand et al. [2004]). Please refer to Appendix A for the construction of each variable. We standardize overall rating to have zero mean and one standard deviation. In Panel A, we divide the sample by education. Low education is an indicator for education lower than college. High education is an indicator for education higher than or equal to collage. In Panel B, we divide the sample by length of employment. Short employment is an indicator variable for employment period shorter than one year. Long employment is an indicator variable for employment period longer than or equal to one year.

	Overall Rating		Chi Square Test
	(1)	(2)	(3)
Panel A: By Education			
	Low Education	High Education	
1 [t >= Misconduct Announcement]	-0.906**	-0.224*	6.78***
	[0.399]	[0.126]	
Observations	21,625	108,109	
R-squared	0.139	0.138	
Panel B: Length of Employment			
	Short	Long	
1 [t >= Misconduct Announcement]	-1.570***	-0.308**	9.00***
	[0.523]	[0.121]	
Observations	5,636	124,030	
R-squared	0.252	0.134	
Individual level controls	Yes	Yes	
Year, Month FE	Yes	Yes	
Firm FE	Yes	Yes	
Firm level controls	Yes	Yes	

Table 7: Effects of Financial Misconduct Announcement on Employees' Ratings: Announcement Year

This table presents regression outputs using the following specification.

$$y_{ift} = \gamma 1[t = MisconductAnnouncement]_{ft} + \beta D_{it} + \phi X_{ft} + \zeta_f + \lambda_t + \epsilon_{ift}$$

where y_{ift} denotes our individual-level outcome of interest, $1[t = MisconductAnnouncement]_{ft}$ denotes an indicator for the year of the announcement of misconduct, D_{it} denotes individual-level controls including gender, age, education, regular worker indicator, length of employment, headquarters state indicator), X_{ft} denotes firm-level financial controls like ROA, Tobin's q and market to book ratio, ζ and λ denote firm and time (year and month) fixed effects. We cluster standard errors at the firm-level to allow for arbitrary degrees of autocorrelation in shocks within the firm over time (Bertrand et al. [2004]). Please refer to Appendix A about the construction of each variable. The dependent variables by column are overall rating, career opportunity, compensation benefit, senior leadership, work-life balance, culture value, and recommend, respectively. We standardize all ratings except for recommend to have zero mean and one standard deviation.

VARIABLES	(1) Overall Rating	(2) Career	(3) Benefit	(4) Leadership	(5) Work Life	(6) Culcure	(7) Recommend
1 [t = Misconduct Announcement]	-0.212*	-0.300*	-0.230**	-0.167*	-0.172*	-0.168**	-0.040
	[0.108]	[0.179]	[0.111]	[0.098]	[0.103]	[0.079]	[0.046]
Individual level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year, Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	129,801	125,148	125,068	124,103	125,065	124,567	121,086
R-squared	0.134	0.102	0.205	0.110	0.134	0.139	0.102

Table 8: Effects of Firms' Cumulative Return on Employees' Ratings

This table presents regression outputs using the following specification.

$$y_{ift} = \gamma SizeAdjCumRet_{ft} + \beta D_{it} + \phi X_{ft} + \zeta_f + \lambda_t + \epsilon_{ift}$$

where y_{ift} denotes our individual-level outcome of interest, $SizeAdjCumRet_{ft}$ denotes yearly size-adjusted stock market cumulative return, D_{it} denotes individual-level controls (including gender, age, education, regular worker indicator, length of employment, headquarters state indicator), X_{ft} denotes firm-level financial controls like ROA, Tobin's q and market to book ratio, and ζ and λ denote firm and time (year and month) fixed effects. We cluster standard errors at the firm level to allow for arbitrary degrees of autocorrelation in shocks within the firm over time (Bertrand et al. [2004]). Please refer to Appendix A for the construction of each variable. The dependent variables by column are overall rating, career opportunity, compensation benefit, senior leadership, work-life balance, culture value, and recommend, respectively. We standardize all ratings except for recommend to have zero mean and one standard deviation.

VARIABLES	(1) Overall Rating	(2) Career	(3) Benefit	(4) Leadership	(5) Work Life	(6) Culcure	(7) Recommend
SizeAdjCumRet	-0.038***	-0.034***	-0.042***	-0.045***	-0.013	-0.035**	-0.017***
	[0.013]	[0.012]	[0.011]	[0.011]	[0.011]	[0.014]	[0.006]
Individual level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year, Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	126,355	121,832	121,765	120,807	121,754	121,264	117,845
R-squared	0.132	0.101	0.203	0.106	0.131	0.136	0.100

Table 9: Effects of Financial Misconduct Announcement on Employees' Base Salary

This table presents regression outputs using the following specification.

$$y_{ift} = \gamma 1[MisconductAnnouncement <= t <= MisconductAnnouncement+2]_{ft} + \beta D_{it} + \phi X_{ft} + \zeta_f + \lambda_t + \epsilon_{ift}$$

where y_{ift} denotes log of employees' base pay for the firms, $1[MisconductAnnouncement <= t <= MisconductAnnouncement+2]_{ft}$ denotes an indicator for 0 to 2 years following the public announcement of the misconduct, D_{it} denotes individual-level controls including gender, age, education, regular worker indicator, experience, headquarters state indicator), X_{ft} denotes firm-level financial controls like ROA, Tobin's q, and market to book ratio, and ζ and λ denote firm and time (year and month) fixed effects. We cluster standard errors at the firm level to allow for arbitrary degrees of autocorrelation in shocks within the firm over time (Bertrand et al. [2004]). Please refer to Appendix A for the construction of each variable. Low education is an indicator variable that equals one when the education is lower than college. Short tenure is an indicator variable that equals one if the length of employment is shorter than three years. Non-regular is an indicator variable that equals one if an employee is not a regular worker. Young is an indicator variable that equals one if an employee is younger than 30 years old. Non-HD is an indicator for an employee who does not work in a state in which the headquarters is located.

VARIABLES	(1)	(2)	(3)	(4)	(5)
			Annual Pay		
	Low Education	Short Tenure	Non-regular	Young	Non-HQ
1 [Misconduct Announcement <= t <= Misconduct Announcement+2]	-0.113**	-0.054**	-0.113*	-0.063**	-0.104***
	[0.048]	[0.024]	[0.068]	[0.029]	[0.040]
female	-0.275***	-0.142***	-0.078***	-0.115***	-0.194***
	[0.015]	[0.014]	[0.009]	[0.016]	[0.015]
Age	0.017***	0.014***	0.006***	0.058***	0.014***
	[0.001]	[0.001]	[0.001]	[0.002]	[0.001]
Education = College	-	0.253***	0.029***	0.231***	0.240***
	-	[0.023]	[0.008]	[0.023]	[0.023]
Education > College	-	0.630***	0.303***	0.534***	0.609***
	-	[0.035]	[0.027]	[0.034]	[0.039]
Regular Worker	0.970***	1.197***	-	1.122***	1.209***
	[0.047]	[0.052]	-	[0.052]	[0.050]
Length of Employment	0.046***	0.089***	0.038***	0.047***	0.043***
	[0.002]	[0.006]	[0.003]	[0.004]	[0.002]
Headquarters State	0.316***	0.407***	0.223***	0.413***	-
	[0.028]	[0.035]	[0.024]	[0.038]	-
ROA	0.234	-0.147	-0.140	-0.145	-0.188*
	[0.191]	[0.104]	[0.104]	[0.115]	[0.100]
Tobin's q	-0.039***	-0.004	-0.003	-0.008	-0.015*
	[0.014]	[0.008]	[0.005]	[0.008]	[0.009]
Market to Book Ratio	-0.000	-0.000**	-0.000	-0.000**	-0.000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Year, Month FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Observations	45,693	142,247	66,381	151,330	191,331
R-squared	0.538	0.626	0.582	0.654	0.644

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Table 10: Effects of the Financial Misconduct on Employees' Ratings

This table presents regression outputs using the following specification.

$$y_{ift} = \gamma 1[t = Misconduct]_{ft} + \beta D_{it} + \phi X_{ft} + \zeta_f + \lambda_t + \epsilon_{ift}$$

where y_{ift} denotes our individual-level outcome of interest, $1[t = Misconduct]_{ft}$ denotes an indicator for the years of committing misconduct, D_{it} denotes individual-level controls including gender, age, education, regular worker indicator, length of employment, headquarters state indicator), X_{ft} denotes firm-level financial controls like ROA, Tobin's q and market to book ratio, ζ and λ denote firm and time (year and month) fixed effects. We cluster standard errors at the firm-level to allow for arbitrary degrees of autocorrelation in shocks within the firm over time (Bertrand et al. [2004]). Please refer to Appendix A about the construction of each variable. The dependent variables by column are overall rating, career opportunity, compensation benefit, senior leadership, work-life balance, culture value, and recommend, respectively. We standardize all ratings except for recommend to have zero mean and one standard deviation.

VARIABLES	(1) Overall Rating	(2) Career	(3) Benefit	(4) Leadership	(5) Work Life	(6) Culcure	(7) Recommend
1 [t = Misconduct]	-0.200***	-0.221***	-0.504***	-0.515***	-0.027**	-0.421***	-0.136***
	[0.013]	[0.013]	[0.012]	[0.016]	[0.012]	[0.013]	[0.007]
Individual level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year, Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	129,801	125,148	125,068	124,103	125,065	124,567	121,086
R-squared	0.134	0.102	0.205	0.110	0.134	0.139	0.102

Table 11: Effects of the Financial Misconduct on Employees' Ratings: Heterogeneous Effects

This table presents regression outputs using the following specification.

$$y_{ift} = \gamma 1[t = Misconduct]_{ft} + \beta D_{it} + \phi X_{ft} + \zeta_f + \lambda_t + \epsilon_{ift}$$

where y_{ift} denotes employees' overall rating for the firms, $1[t = Misconduct]_{ft}$ denotes an indicator for the years of committing misconduct, D_{it} denotes individual-level controls (including gender, age, education, regular worker indicator, length of employment, headquarters state indicator), X_{ft} denotes firm-level financial controls like ROA, Tobin's q, and market to book ratio, and ζ and λ denote firm and time (year and month) fixed effects. We cluster standard errors at the firm level to allow for arbitrary degrees of autocorrelation in shocks within the firm over time (Bertrand et al. [2004]). Please refer to Appendix A for the construction of each variable. We standardize overall rating to have zero mean and one standard deviation. In Panel A, we divide the sample by location. Headquarters is an indicator for whether an employee works in a state in which the headquarters is located. In Panel B, we divide the sample by age.

	Overall Rating		Chi Square Test
	(1)	(2)	(3)
Panel A: By Location			
	Headquarters	Not Headquarters	
1 [t = Misconduct]	-1.889***	0.447***	60.36***
	[0.025]	[0.016]	
Observations	39,105	90,662	
R-squared	0.183	0.122	
Panel B: By Age			
	<= 30	> 30	
1 [t = Misconduct]	0.160***	-0.752***	3.68*
	[0.017]	[0.020]	
Observations	63,745	66,044	
R-squared	0.158	0.130	
Individual level controls	Yes	Yes	
Year, Month FE	Yes	Yes	
Firm FE	Yes	Yes	
Firm level controls	Yes	Yes	

Table 12: Employees Ratings to Help Predicting the Financial Misconduct

Panel A presents regression outputs using the following specification.

$$AAER_{ft} = \gamma EmployeeRatings_{ft} + \beta EmployeeRatingsSD_{ft} + \phi X_{ft} + \epsilon_{ft}$$

where $AAER_{ft}$ is an indicator that denotes whether a firm f commits misconduct in year t, $EmployeeRatings_{ft}$ denotes the mean of employee ratings including career opportunity, compensation benefit, senior leadership, and work-life balance in each firm-year; $EmployeeRatingsSD_{ft}$ denotes the standard deviation of employee ratings; X_{ft} denotes firm financial-statement variables controls like total accruals, change in receivables, change in inventory, percentage of soft assets, change in cash sales, and change in return on assets. We cluster standard errors at the firm level to allow for arbitrary degrees of autocorrelation in shocks within the firm over time (Bertrand et al. [2004]). Please refer to Appendix A for the construction of each variable. We standardize overall rating to have zero mean and one standard deviation. In Columns (1) and (2), we use the full sample to construct the mean of employee ratings in each firm-year. In Columns (3) and (4), we only use employees in the headquarters state to construct the mean of employee ratings.

Panel A: Logistic regression				
	(1)	(2)	(3)	(4)
VARIABLES	Full Sample	Full Sample	HQ State	HQ State
Career		1.420		1.001
		[1.003]		[1.287]
Benefit		-1.512**		-2.534***
		[0.648]		[0.540]
Leadership		-1.496***		-0.204
		[0.486]		[0.991]
Work life		1.526		0.119
		[1.164]		[0.851]
Sd of career		-0.040		-1.844**
		[0.670]		[0.761]
Sd of benefit		-1.996***		0.158
		[0.684]		[1.747]
Sd of leadership		-0.051		-0.680
		[0.800]		[1.426]
Sd of work Life		-0.545		-0.813
		[1.069]		[1.405]
Total accruals	1.340***	1.463***	1.934***	1.229
	[0.392]	[0.465]	[0.336]	[0.954]
Change in receivables	15.209***	13.517***	20.470***	13.976
	[4.265]	[4.336]	[7.924]	[10.701]
Change in inventory	-2.755***	-4.326***	-2.869**	-4.164*
	[0.922]	[1.045]	[1.243]	[2.367]
Percentage of soft Assets	-0.030	-0.187	0.789	1.068
	[0.667]	[0.797]	[1.552]	[2.102]
Change in cash Sales	-0.253	-0.061	-0.950	-1.083
	[0.408]	[0.530]	[0.671]	[0.725]
Change in return on assets	-1.698***	-1.267**	-0.974	-0.494
	[0.493]	[0.552]	[1.759]	[2.193]
Equity or debt issuance	-1.629*	-1.608**	–	–
	[0.845]	[0.639]	–	–
Observations	5,369	5,230	4,232	3,920
Pseudo R2	0.0616	0.161	0.0513	0.232

Panel B presents the examination of the detection rates of misconduct and non-misconduct firm years for each model reported in Panel A. All observations are ranked based on their predicted probabilities (F-scores) and sorted into quartiles. Minimum F-score is the minimum scaled predicted probability based on estimates in Panel A to enter each quartile.

Panel B: Examination of the detection rates for two models

	Model without employee ratings			Model with employee ratings		
	Obs.	Min. F-score	% of total obs.	Obs.	Min. F-score	% of total obs.
Quartile 1						
Misconduct	2	0.473	15.38%	1	0.231	7.69%
No-misconduct	1,341	0	25.04%	1,307	0	25.05%
Quartile 2						
Misconduct	2	0.669	15.38%	0	/	0.00%
No-misconduct	1,340	0.608	25.02%	1,307	0.248	25.05%
Quartile 3						
Misconduct	1	0.853	7.69%	1	0.659	7.69%
No-misconduct	1,341	0.745	25.04%	1,307	0.415	25.05%
Quartile 4						
Misconduct	8	1.015	61.54%	11	1.116	84.62%
No-misconduct	1,334	0.881	24.91%	1,296	0.777	24.84%

In Panel C, we evaluate the sensitivity of the models and determine Type I and Type II error rates for an F-score cutoff of 1.00. A Type I error occurs when our model incorrectly classifies a non-misconduct firm as a misconduct firm. A Type II error occurs when our model incorrectly classifies a misconduct firm as a non-misconduct firm.

Panel C: F-score cutoff set at 1.00

| | Model without employee ratings | | | | Model with employee ratings | | |
	Detected Misconduct	Detected No-misconduct	Total		Detected Misconduct	Detected No-misconduct	Total
Observed misconduct	8	5	13		11	2	13
Observed no-misconduct	891	4,465	5,356		954	4,263	5,217
Total	899	4,470	5,369		965	4,265	5,230
Correct classification		83.31%				81.72%	
Sensitivity		61.54%				84.62%	
Type one errors		16.64%				18.29%	
Type two errors		38.46%				15.38%	

Notes:
(1) Correct classification is calculated as [(8 + 4,464) 5,369].
(2) Sensitivity is calculated as (8 13).
(3) Type I errors are calculated as 891 5,356.
(4) Type II errors are calculated as (5 13).

Table 13: Effects of Accounting Restatement Announcement on Employees' Ratings

This table presents regression outputs using the following specification.

$$y_{ift} = \gamma 1[t >= RestetamentAnnouncement]_{ft} + \beta D_{it} + \phi X_{ft} + \zeta_f + \lambda_t + \epsilon_{ift}$$

where y_{ift} denotes our individual-level outcome of interest, $1[t >= RestamentAnnouncement]_{ft}$ denotes an indicator for the years after the announcement of a firm's first restatement, D_{it} denotes individual-level controls (including gender, age, education, regular worker indicator, length of employment, headquarters state indicator), X_{ft} denotes firm-level financial controls like ROA, Tobin's q, and market to book ratio, and ζ and λ denote firm and time (year and month) fixed effects. We cluster standard errors at the firm level to allow for arbitrary degrees of autocorrelation in shocks within the firm over time (Bertrand et al. [2004]). Please refer to Appendix A for the construction of each variable. The dependent variables by column are overall rating, career opportunity, compensation benefit, senior leadership, work-life balance, culture value, and recommend, respectively. We standardize all ratings except for recommend to have zero mean and one standard deviation.

VARIABLES	(1) Overall Rating	(2) Career	(3) Benefit	(4) Leadership	(5) Work Life	(6) Culcure	(7) Recommend
Panel A: Intentional Restatements (SizeAdjCumRet <= 0)							
1 [t >= Restatement Announcement]	-0.127	-0.092	-0.114	-0.130	-0.029	-0.225	-0.036
	[0.107]	[0.156]	[0.072]	[0.142]	[0.113]	[0.141]	[0.042]
Observations	126,146	121,602	121,520	120,570	121,519	121,033	117,682
R-squared	0.135	0.102	0.208	0.111	0.136	0.141	0.103
Panel B: Intentional Restatements (SizeAdjCumRet > 0)							
1 [t >= Restatement Announcement]	-0.119	-0.213	-0.081	-0.105	-0.031	-0.100	0.017
	[0.087]	[0.144]	[0.134]	[0.114]	[0.101]	[0.113]	[0.051]
Observations	129,033	124,415	124,334	123,379	124,334	123,837	120,375
R-squared	0.134	0.101	0.205	0.109	0.134	0.139	0.102
Individual level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year, Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 14: Effects of Financial Misconduct Announcement on Employees' Ratings: Including Observations with Missing Control Variables

This table presents regression outputs using the following specification.

$$y_{ift} = \gamma 1[t >= MisconductAnnouncement]_{ft} + \beta D_{it} + \phi X_{ft} + \zeta_f + \lambda_t + \epsilon_{ift}$$

where y_{ift} denotes our individual-level outcome of interest, $1[t >= MisconductAnnouncement]_{ft}$ denotes an indicator for the years following the public announcement of the misconduct, D_{it} denotes individual-level controls (including gender, age, education, regular worker indicator, length of employment, headquarters state indicator), X_{ft} denotes firm-level financial controls like ROA, Tobin's q, and market to book ratio, and ζ and λ denote firm and time (year and month) fixed effects. We cluster standard errors at the firm level to allow for arbitrary degrees of autocorrelation in shocks within the firm over time (Bertrand et al. [2004]). Please refer to Appendix A for the construction of each variable. The dependent variables by column are overall rating, career opportunity, compensation benefit, senior leadership, work-life balance, culture value, and recommend, respectively. We standardize all ratings except for recommend to have zero mean and one standard deviation.

VARIABLES	(1) Overall Rating	(2) Career	(3) Benefit	(4) Leadership	(5) Work Life	(6) Culcure	(7) Recommend
1 [t >= Misconduct Announcement]	-0.131*	-0.144**	-0.119**	-0.076	-0.078	-0.193***	-0.029
	[0.071]	[0.061]	[0.050]	[0.068]	[0.074]	[0.069]	[0.035]
Individual level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year, Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	309,188	284,711	284,643	281,900	284,750	244,616	261,665
R-squared	0.122	0.093	0.182	0.099	0.124	0.133	0.102

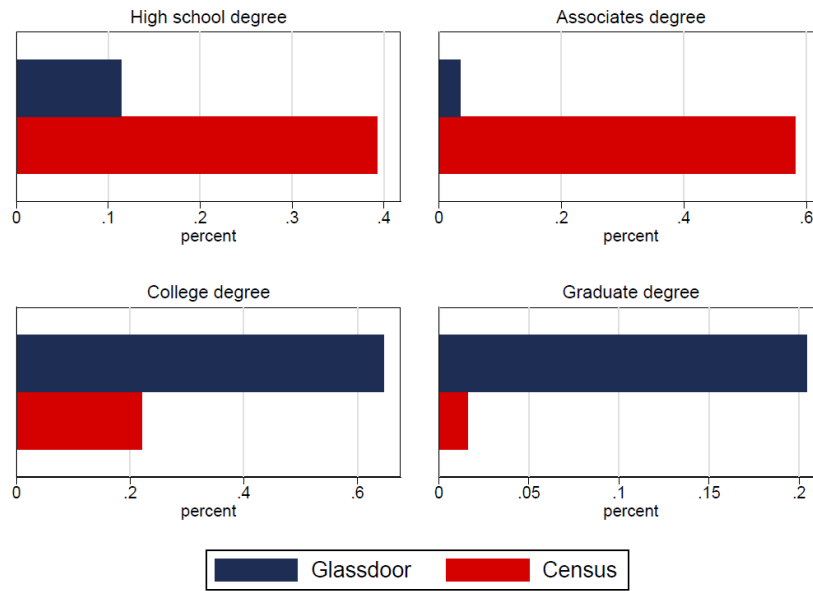Figure A.1: Comparison of Earnings Distributions by Metro Area
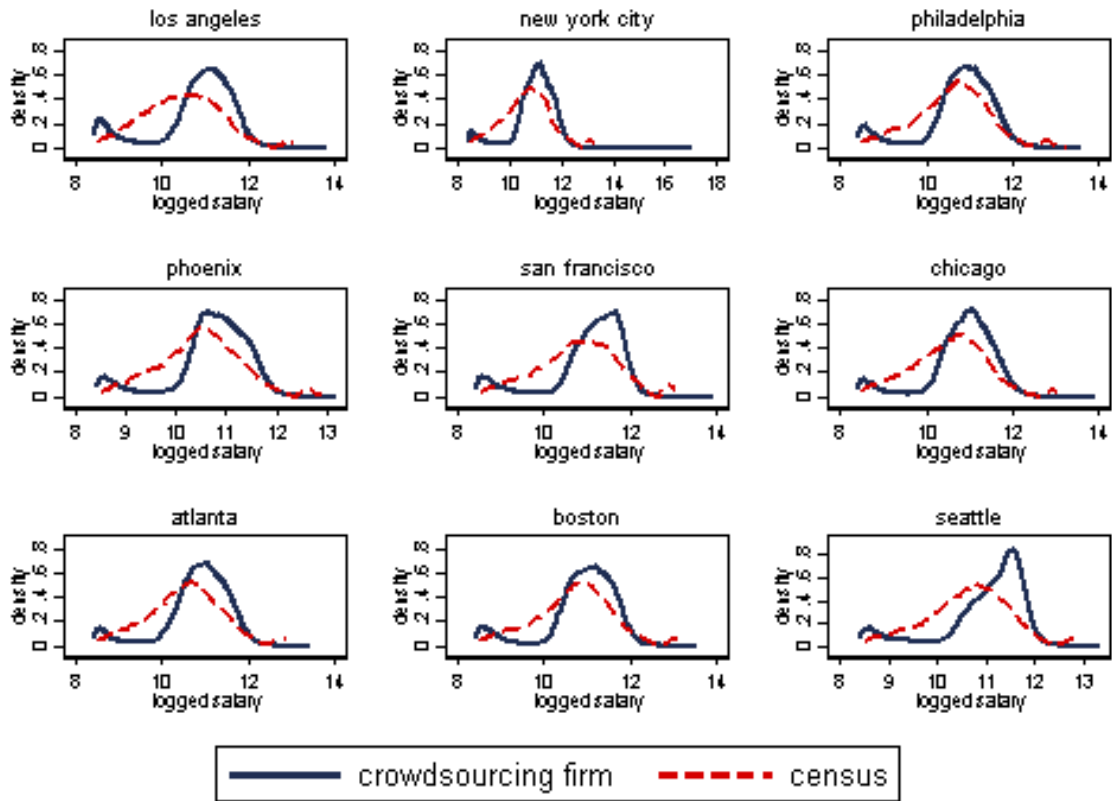
This figure uses American Community Survey (ACS) and proprietary individual data from Glassdoor to plot the distribution of logged earnings between 2008 and 2016 by metro area deflated using the personal consumption expenditures index (2009 base year). The sample is restricted to individuals with over $5,000 in annual salary.

Figure A.2: Comparison of Earnings Distributions by Industry
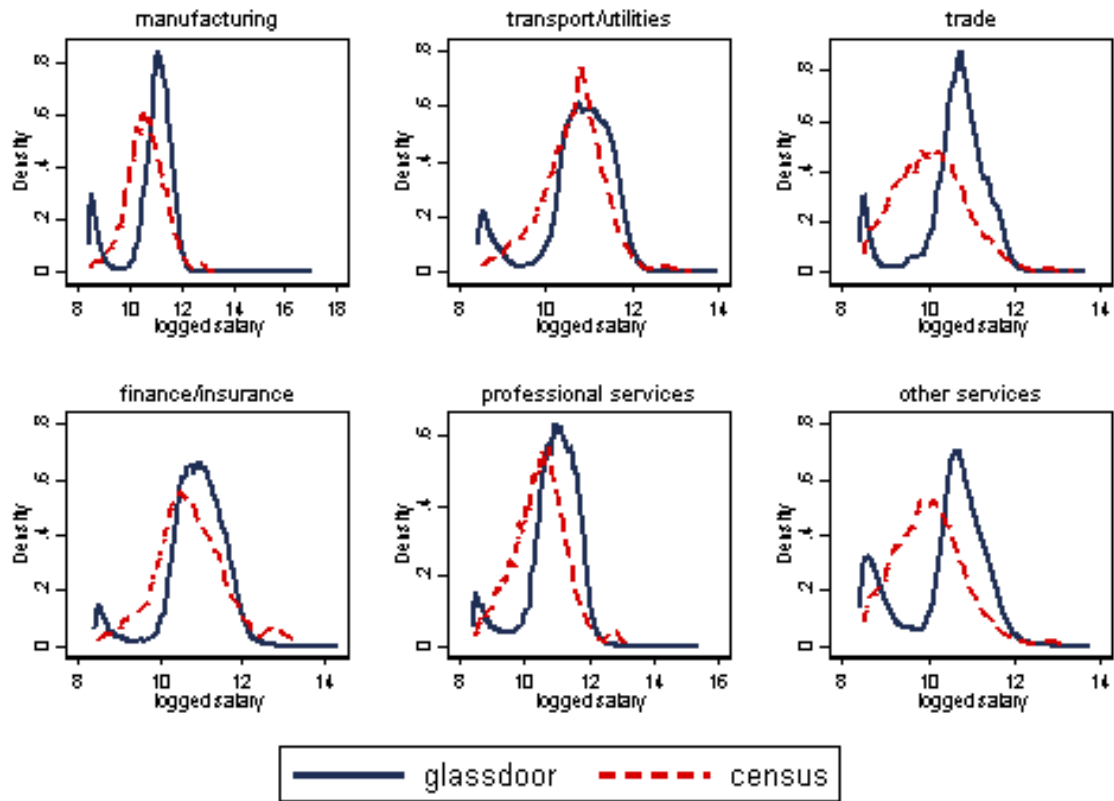
This figure uses American Community Survey (ACS) and proprietary individual data from Glassdoor to plot the distribution of logged earnings between 2008 and 2016 by major industry deflated using the personal consumption expenditures index (2009 base year). The sample is restricted to individuals with over $5,000 in annual salary.

Figure A.3: Comparison of Education and Industry Employment

(a)
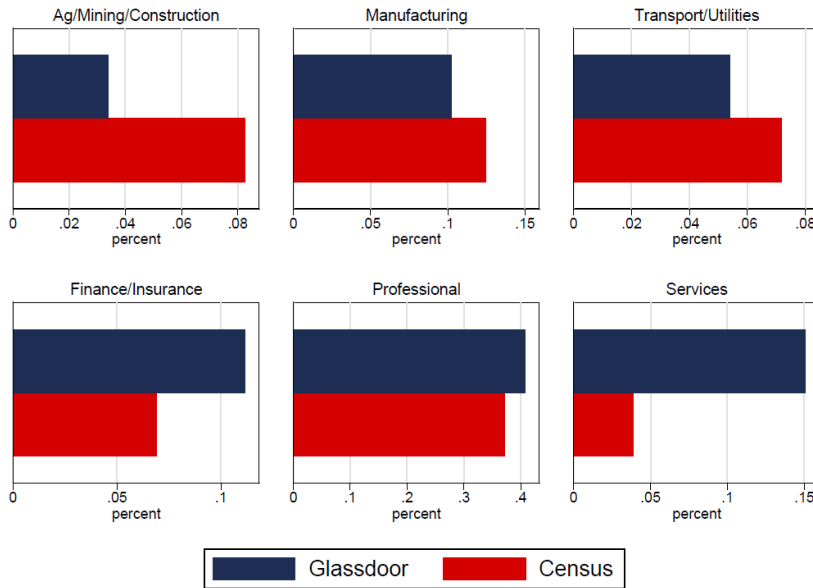
(b)

This figure uses American Community Survey (ACS) and proprietary individual data from Glassdoor to plot (a) the share of workers with less than 13 years of school (high school), an associates degree, a college degree, and a graduate or PhD degree; (b) the share of workers employed in different industries. The sample is restricted to full-time workers.