ESSAYS IN FINANCIAL CREDIBILITY OF EMPLOYEES OPINIONS

by

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ABSTRACT OF THE DISSERTATION

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This doctoral dissertation explores the nature of information available to firms' non-executive employees in two chapters. The first chapter examines whether employees, as a group, possess valuable information about their firms that outside investors and even their managers may not have? In the first chapter we isolate employee opinions (Glassdoor data) from those of stock market participants by focusing on private firms that subsequently go public. Employees' pre-IPO views are informative: positive views on firm quality predict stronger post-IPO stock-performance. In addition, dispersion in employee opinions correlates with post-IPO return volatility. Somewhat surprisingly, employee satisfaction (e.g., work-life-balance) is negatively related to firm performance, after controlling for opinions on firm quality. Negative initial-day stock returns depress employees' views regarding firm quality: hence, leaving 'money-on-the-table' helps avoid a loss of employees' morale.

In the second chapter we test whether employees continuously provide reliable non-public information about their firms? Using textual analysis of Glassdoor data we show that employee opinions, at least in aggregate, are continuously informative about their firms and are positively associated with future firm performance and value. Following Quiet life hypothesis, employee-satisfaction (e.g., work-life-balance & compensation) is negatively related to firm performance, when we control for

opinions on firm quality. We also show that employee opinions are more valuable in the presence of greater complexity and uncertainty. In addition, dispersion in employee opinions correlates with concurrent and future stock volatility. We also find there is a positive (negative) relation between change in firm size and employees' view about firm quality (employee satisfaction, controlling for firm quality). Textual analysis also indicates that employees' negative and uncertain tone about their firm is negatively related to firm value and predictive of future stock volatility. Finally, we show that firms' performance is the main employees' motivation to provide extended textual disclosure about their firm.

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1.1 Introduction

Do employees, as a group, have value-relevant information that outside investors and, possibly, even the firm's managers do not have? Individual employees lack the type of company-wide information available to upper management. They may, however, develop informed views about firm and management quality based on personal experiences and observations about the capability of their co-workers and direct supervisors. Employees may also have better insight into the morale and motivation of co-workers, with its implications for firm value. This gives rise to the question of whether the opinions of individual employees, if suitably aggregated, could provide salient information about the quality of the firm and is predictive of the firm's future performance.

Corporations have a variety of formal and informal channels that gather and convey information to managers. If the information channels within a corporation function well and the firm is sufficiently transparent to outsiders, we would expect employees' views to be largely redundant in an informational sense i.e., their information will tend to be subsumed by what is already known to managers and market investors. It is plausible, however, that information that percolates to senior executives is filtered and distorted at various levels. Similarly, information available to outside market participants can be noisy and biased. Hence, the extent to which employee assessments are informative about future firm performance will depend on the quality of information flow within the corporation and to outside investors. In such circumstances, employee views could be useful to management, the board, investors and the broader market for appraising the firm and its prospects.

For our study, we draw upon data from the Glassdoor website. The Glassdoor website allows employees to submit anonymous opinions about their firms' prospects and their personal sense of well-being (as indicated by measures of work-life balance and compensation). Glassdoor has been in existence since 2007 and has received thousands of voluntary reviews from employees at a wide range of firms, including private businesses. We focus on the views expressed by employees prior

to their firm's IPO and study whether these views are informative about the firm's subsequent initial and longer-term stock performance. As we discuss, a substantial advantage of studying the informativeness of employees' opinions in a pre-IPO setting is that these views are determined in relative isolation from those of stock market participants given the absence of a stock market price and analyst forecasts.

Our finding is that – at least in aggregate – employees' pre-IPO opinions are informative about the value and uncertainty regarding firm performance in the post-IPO period. A somewhat surprising finding is that there appears to be a negative relation between employees' personal sense of well-being and firm performance, after controlling for employees' views on managerial quality and firm prospects. This suggests the possibility of a trade-off between employee work satisfaction and shareholder wealth. Another key finding is that the information effects are bi-directional: employee opinions are not only predictive of firm performance but are also influenced by the firm's post-IPO stock market valuation. While much of the literature focuses on the communications and disclosures by top management, our findings suggest that a firm's own employees could be a significant source of incremental information that eventually reaches the stock market (e.g., by communicating views to outsiders or personally trading stock). This raises the intriguing possibility that information that is not communicated through the firm's internal channels might reach management to some degree, through the market price channel.[1]

As noted above, examining employees' opinions in a pre-IPO setting has certain distinct advantages for our study. Specifically, while employees could have value-relevant information, their perception about firm prospects and value (as we find) can also be influenced by the firm's stock market valuation. Hence, an advantage of using a pre-IPO setting is that we obtain employee opinions prior to the establishment of the firm's stock price. This ensures that employees' opinions are free of reverse causality concerns about the influence of the firm's stock market valuation on employee views. We use these pre-IPO opinions to examine whether employees have information that is predictive of the IPO one-day excess return and the stock's subsequent performance, after controlling for various factors that the literature shows to be related to IPO performance. The no-

[1]The role of stock prices in aggregating the information across various traders has been analyzed in multiple papers such as, for instance, Grossman and Stiglitz [1980].

tion is that if the employees' information is redundant and the firm's management and underwriter set offer prices in a consistent fashion, given various firm and offering attributes, then employee views should not have predictive power. On the other hand, if the firm's management and underwriter lack (or ignore) information that employees have, then employee views could be predictive of post-IPO performance. Additionally, we test for whether employee opinions predict a firm's stock performance after excluding the initial days (up to two weeks) after the IPO date. Such a finding would indicate that employees' pre-IPO views contain information that stock market investors do not have at the time of the IPO and that is eventually incorporated into the firm's stock price. The IPO setting also has the benefit that it allows us to examine changes in employees' opinions in response to the IPO's early performance. We argue that employee morale might be one of the factors that induce firms to be cautious in setting their offer prices in the IPO and, in effect, leaving 'money on the table'.

Our sample consists of 276 firms for which data is available on the Glassdoor website and that go public over the 2008-2016 period. This is roughly a quarter of all IPOs in the U.S. over this time frame. The website reviews include several questions that elicit employees' views on subjects such as firm and managerial quality, whether they would recommend the firm to others and about their personal work-life balance and compensation. Each review is associated with the specific date on which it is provided and cannot be modified by the employee (after a short window)[2]. We use principal components to obtain a composite variable (from five questions) that is intended to capture employee opinions regarding firm prospects and managerial quality QualityRating. We hypothesize that employee opinions about firm quality, to the extent they contain non-public, value-relevant information, will be predictive of firm performance in the post-IPO period.

Our finding is that employees' pre-IPO views are strongly predictive of IPO excess returns over different horizons for up to a year after listing. Our interpretation is that employees, at least in aggregate, possess information about the value and prospects of their firms. This value is subsequently reflected in the stock-market valuation of their companies. The information that employees possess is either not known or is ignored in the setting of the offer price by firm management and

[2]While employees cannot go back and change their reviews they can, of course, provide new reviews over time if they create a new account.

underwriter. We also show that our results are robust to excluding employee opinions in the six-month window prior to the IPO. Hence, our findings are not driven by employee opinions provided in the months just preceding the IPO – when the firm's decision to go public is likely to. known to employees.

We test for whether employee views are predictive of stock performance over various horizons, even after excluding the initial days or weeks after the IPO. Our finding is that employee opinions remain predictive of stock performance even after the initial post-IPO period is dropped (two weeks and longer). This suggests that some of the employees' information is only gradually incorporated in stock prices. It is possible as noted above, that employees could play a role in transmitting their information through casual dissemination (to friends and family) as well as personal trading. In terms of economic significance, our results indicate that a 1-standard deviation higher QualityRating in the pre-IPO period is associated with 3.78% (5.83%) larger one-day (60-days) excess return after the IPO.[3]. In additional tests, we show that our findings are robust to controlling for executives' views prior to the IPO, as expressed in SEC filings. The literature indicates that these filings can be informative about how executives view their firms and the main risks they face at the time of the IPO (Loughran and McDonald [2013]).

We next examine the relation between the dispersion in employees' view and post-IPO stock market volatility. We find that the dispersion in pre-IPO views are correlated with subsequent stock excess return volatility, suggesting that dispersion in employee views is echoed in investor uncertainty regarding firm valuation. In terms of economic importance, one unit increase in standard deviation of QualityRating is associated with 0.176 higher standard deviation of daily excess return in the year following the IPO[4].

The Glassdoor website, in addition to collecting information about firm and managerial quality, allows employees to answer questions that correspond to the employees' personal well-being: specifically, their work-life balance and compensation. We contend that the relation between employees' sense of well-being and firm value is ambiguous and, ultimately, an empirical question. We examine

[3]Calculation is based on a standard deviation of .979 for QualityRating (Table 1-1-B) and coefficients on 1-day and 60-day excess returns of 3.86 and 5.96 (Table 1-4-C)

[4]Using normal standardized scales. See Panel C on Table B-8 in Appendix B for more details.

whether work-life balance and compensation, along with a principal component measure based on these variables SatisfactionRating, are informative about firm performance, controlling for QualityRating and various firm and IPO variables. Results indicate that employees' sense of well-being is negatively associated with future firm performance (controlling for views on firm quality).[5] Our interpretation is that this surprising finding could be the consequence of some firm managers seeking a 'quiet-life' (Bertrand and Mullainathan [2003]) for themselves and their employees. Hence, the SatisfactionRating variable could capture a less-stressful work environment coupled with generous benefits and compensation, apparently at the expense of shareholders. Our results indicate that a 1-standard deviation increase in SatisfactionRating before the IPO is associated with a 12.96% (10.36%) lower one-day (four weeks) excess return, controlling for employee views on firm quality[6].

We next explore the potentially important issue of a two-way influence between the stock market and employees. The notion is that while employee opinions may be predictive of firm performance, their views on firm quality and their career prospects could, in turn, be influenced by the firm's stock market performance. Our results indicate that employee opinions are negatively affected when initial day returns are negative i.e., the closing stock price is below the IPO offer price. This suggests that a benefit of 'underpricing' an IPO may be that it reduces the risk of negative IPO initial returns, along with a drop in employee morale.

An examination of withdrawn IPOs in our sample does not indicate that withdrawals have a significant negative effect on employee opinions. Though the small sample of withdrawals (only 30) makes it difficult to draw reliable inferences, employee views may not be negatively affected if, for instance, the IPO is believed to have been appropriately delayed rather than cancelled. We further examine the evolution of employee opinions in the pre-IPO period. It appears that employees' opinions on firm quality are on an upswing around the time of the IPO. It is also interesting that employee opinions regarding personal balance/comfort appear to be declining at this time.

We believe that our findings are important for several reasons: First they suggest that employees tend to possess pertinent information (at least in aggregate) that is either not available or

[5] QualityRating and SatisfactionRating are positively related. If we do not control for QualityRating and various firm and IPO variables, the SatisfactionRating is positively related to post-IPO stock performance at some horizons.

[6] Calculation is based on a standard deviation of 1.016 for SatisfactionRating (Table 1-1-B) and coefficients on 1-day and 4-week excess returns of -12.76 and -10.2 (Table 1-12-C)

ignored by management and market participants in the pricing of IPOs. While employee views are informative, it is not evident that firms and/or shareholders could reliably ascertain employee views on an ongoing basis. A reason is that if a formal process is instituted by the firm to collect such information, employees' incentives to provide accurate information may be distorted. Our data source is based on voluntary and anonymous information aggregation and it is quite possible that the voluntary and anonymity aspects (as in Glassdoor) may be necessary for employees to be willing to provide their views accurately. Second, our results suggest that one of the sources of information flow to the market could be employees of a firm. Hence, stock market learning and feedback (Bond et al. [2012]) could occur, in part, because of information that comes from employees within the firm but through stock market pricing rather than internal channels. Finally, our results suggest that firm stock price performance has an impact on employee opinions. Our findings are consistent with firms choosing to set somewhat lower IPO offer prices in order to reduce the likelihood of negative IPO returns and a potential loss of employee morale.

The rest of the first chapter is organized as follows: Section 1.2 discusses related literature and develops our main hypotheses. Section 1.3 describes the data used in our study and summarizes key variables. Section 1.4 presents the analysis and discusses the results. Section 1.5 concludes.

1.2 Related Literature and Hypothesis Development

1.2.1 Related Literature

This chapter is related to several streams in the literature. First, there is the extensive literature on IPO pricing and performance that seeks to explain, for instance, the price setting process in IPOs, their initial-day returns and longer-term performance and the role of various financial intermediaries.[7] Surveys of the IPO literature include Ritter and Welch [2002], Lowry et al. [2017] and others. IPO pricing and performance has been linked to various firm (e.g., firm size, age, industry,

[7]IPO firms exhibit long-run underperform compared, for instance, to Nasdaq market index. There is weaker or no evidence of underperformance when IPO firms are matched to similar firms (based on size and book-to-market) or, for instance, when IPOs backed by VC firms. (See, among others, Ritter [1991] and Loughran and Ritter [1995], Baker and Wurgler [2000], Brav and Gompers [1997]).

information asymmetry)[8] and IPO attributes (e.g., underwriter reputation, VC presence, offering size) and to stock market conditions (e.g., 'hot' IPO market). Our contribution is to show that employees' pre-IPO opinions are predictive of the firm's post-IPO stock performance, stock return volatility and size of the offering, after controlling for firm, industry, time and IPO attributes.

The IPO chapter is also related to the growing literature on firm culture and employee satisfaction and their implications for firm value and performance. Most papers in the area, many in management or psychology, find a positive relation between employee satisfaction and firm performance. Among these, Ostroff [1992] and Harter et al. [2002] find that organizations with more satisfied employees tend to be more productive than those with less satisfied employees. Fulmer et al. [2003] finds that the best companies emphasize employee relations, while Oswald et al. [2015] find a positive relation between happiness and productivity. Faleye and Trahan [2011] find that labor friendly firms perform better than other similar firms, both in terms of long run stock market returns and operating results. Edmans [2011, 2012] shows there is positive relation between employees' satisfaction and firm performance using "100 best companies to work For in America".[9] He finds that firms with high levels of job satisfaction generate higher long-term stock returns. Edmans et al. [2014] report similar findings for 14 different countries using similar data. They also show employees' satisfaction is associated with positive abnormal returns in countries with high labor flexibility. In this chapter we examine the relation between employee views on their life-work balance and compensation and the implications for post-IPO performance. We show that, after controlling for employee views on firm quality, work-life balance and compensation are negatively related to post-IPO performance. However, when firm quality views are not controlled for, there is a generally positive relation between our satisfaction measures and post-IPO performance.[10] Our results suggest that the value implications of employee work satisfaction (after controlling for firm quality) may have some correspondence to the "quiet life hypothesis" (Bertrand and Mullainathan [2003]). For instance, an easygoing and mellow environment within a firm could increase employee

[8] Young firms and tech firms are associated with higher information asymmetry, which can lead to higher underpricing (see Rock [1986], Beatty and Ritter [1986], Michaely and Shaw [1994])

[9] Data is from Great Place to Work® institute in San Francisco.

[10] Employees opinions on firm and CEO quality and work-life balance are positively correlated (Table 1-1-D). However, the marginal effect of work-life balance on firm value and performance is negative, after controlling for employee opinions on firm and CEO quality.

satisfaction, though it may come at the expense of shareholders.

There is also a large literature on the flow of information from firm management and outsiders such as analysts and investors that can influence stock prices (e.g., Healy and Palepu [2001], Graham et al. [2005]). Our finding that employees, at least in aggregate, have valuable information raises the possibility that employees, through sharing their views and/or stock trading, could be another source of firm-related information that is incorporated into market prices.

There is literature on stock market valuation effects on employees. In particular, some papers discuss the awarding of options more broadly to non-executive employees and the resulting exposure of employees (e.g., Oyer and Schaefer [2005] and Bergman and Jenter [2007]). Our results suggest that a firm's stock market valuation could be a matter of significant concern to employees, at least at the time a firm goes public. This is reflected in the significant decline in employee opinions regarding firm quality when IPO initial period returns are poor relatively poor. We suggest that managers that are concerned about employee morale after the IPO may be more inclined to underprice their IPOs.

1.2.2 Hypotheses

Our first hypothesis concerns the informativeness of employees' opinions, such as those expressed via Glassdoor, about the quality of their firms. Within the firm, it is senior management and board of directors that are usually regarded as being best informed about the firm: Not only are they privy to information from the firm's various activities, but they are also the entities that make decisions about firm strategy and policies. While employees may not have the broad firm-level information available to senior executives, they might have accurate information that is specific to their own functions and/or departments. This could include information that may be difficult to communicate within an organization, such as attitudes and morale of their co-workers. If this information, dispersed among a firm's employees, could be aggregated – as, for instance, via Glassdoor – it is conceivable that the overall picture that emerges might be highly informative about future firm value and prospects. An (imperfect) analogy can be made to financial markets:[11] markets are

[11]The analogy is 'imperfect' in a pre-IPO setting since employees have no ability to trade on their views. They can only post their views on the Glassdoor website and, possibly, other social media.

believed to aggregate information about firm values across various market participants (e.g., Grossman and Stiglitz [1980]; Kyle [1985]). The number and variety of employee opinions on Glassdoor allows for the possibility that the average (and other measures) of these opinions provides somewhat reliable information that may not be fully known to managers and outside investors. As discussed earlier, the advantage of studying employee opinions in a pre-IPO setting is that it largely isolates employee views from those of investors in the general market. This leads to our hypothesis that employee reviews about their firms could provide information that would be predictive of future firm value and performance.

H1: If employees in a pre-IPO firm have private information about aspects of their firm's performance and prospects: we expect the aggregation of employee opinions about firm quality to be positively related to the initial and longer-term IPO stock price performance.

There can be considerable heterogeneity in the views among employees with regard to firm quality. We hypothesize that greater divergence in the opinions of employees could be mirrored in similarly high uncertainty on the part of stock market investors. Hence:

H2: Divergence among employees' opinions about firm quality of a pre-IPO firm is expected to be related to post-IPO valuation uncertainty among market participants and manifest in greater stock price volatility.

Our next hypothesis addresses the opinions that employees express about satisfaction with their place of work. For our study, this includes employee opinions about their personal work-life-balance and compensation. We expect there to be strong correlation between employee satisfaction and firm quality. However, after controlling for firm quality opinions, it is ambiguous as to whether personal satisfaction measures would tend to be positively or negatively related to firm value and performance.

As noted above, there are several empirical studies that suggest employees that are relatively

satisfied with their situation in the firm tend to well-motivated and productive. However, there may well be a 'dark side' to employee satisfaction. It is possible that firms in which managements have succumbed to a 'quiet-life' (Bertrand and Mullainathan [2003]) might be the ones in which employees' express greater satisfaction with their workloads and compensation. Hence, employees' satisfaction may well come at the expense of shareholders. It is an empirical issue as to whether employee satisfaction results in more productive employees– or is reflective of agency issues in the firm and worse outcomes for shareholders. We state:

H3: Higher employees' satisfaction (based on work-life balance and compensation), controlling for employees' views on firm quality, could be associated with employee-centric management that can come at the expense of shareholder value. Hence, employee satisfaction could be associated with an incrementally lower firm value and performance.

We have noted that, after a firm has gone public, employee opinions are likely to be influenced by investor opinions expressed through stock prices and other channels. In particular, a poor stock market response to the IPO could discourage employees and result in turnover of higher quality employees and overall lower productivity. This suggests that firms might prefer to withdraw their IPOs rather than face the possibility of a poor market reception. Furthermore, firms may prefer to underprice their IPOs in order to generate a positive stock market response and lower the risk to employee morale. We state:

H4: A significantly negative initial-day IPO excess return could result in a substantial drop in employee opinions with regard to firm quality.

1.3 Data and summary statistics

In this section, we provide details on data sources and the construction of our dataset. The main variables of interest are briefly described, along with summary statistics. Our data on employees'

opinions is obtained from the Glassdoor website.[12] IPO data is from SDC Platinum, with additional IPO disclosure information from SEC-Edgar. Firms' financials and stock returns data are from Compustat and CRSP, respectively. We begin by describing the data from Glassdoor and our measures of employee opinions.

1.3.1 Employee Opinions from Glassdoor

Glassdoor Inc. is a privately held, California-based, company founded in 2007. Glassdoor claims that their website is "the world's most transparent career community that is changing the way people find jobs, and companies recruit top talent."[13] Over the 2008 to 2016 sample period, the Glassdoor database experienced rapid growth, with more than six million reviews by the end of 2016. The reviews, volunteered anonymously by employees, have grown to cover more than 300,000 firms from around the world and include employees' ratings on various aspects of their employment.

Each individual "company review"[14] on Glassdoor website records responses for up to nine different queries, the review date, pros, cons, and advice to management. Employees can provide partial reviews by leaving some queries blank. Each employee rates the overall condition of the firm (from one to five stars, where five is the best rating), her approval or disapproval of the CEO and her rating of the senior management of the company. She also answers the question "Do you recommend the firm to a friend?", rates her six-month outlook (positivenegativeneutral) on the firm and the culture in the firm (from one to five). In addition, the employee rates her career opportunities in the firm (from one to five), the compensation and benefits of the firm (from one to five) and her personal work-life balance (from one to five). In our analysis, we exclude the culture and senior management ratings from our analyses because these two ratings are frequently left blank in our sample of pre-IPO companies. To construct our sample, we collect all pre-IPO employees' reviews available on Glassdoor. Our data of pre-IPO Glassdoor reviews has over 17K observations for 276 firms among companies that have had an IPO over the 2008-2016 period.[15] Over this time

[12] www.glassdoor.com

[13] The quote is from the Glassdoor website.

[14] Glassdoor has reviews other than company reviews. It has Salary reviews, and interview reviews as well. But these two are not linked to the company reviews provided by each individual.

[15] The first pre-IPO observations on Glassdoor are from 2008.

period there is a substantial increase in the number of employee opinions in our sample as shown in Table 1-1-A. The increase in the number of reviews over the sample period reflects the increase in popularity of Glassdoor. The number of sample opinions is also affected by the number of IPOs in the year.

To post a review on Glassdoor an individual is required to create an account which can be activated by her email address. She can then provide some or all of company ratings in response to the website's queries and post her review. The review is usually available publicly after a 24-hour period that Glassdoor requires to review comments.[16] The reviewer can edit her review for up to 30 days after the initial posting. Each account allows individuals to review a company once. To be able to post additional reviews for the same company she may need to sign up for a new account.

For our tests, we average employees' opinions for each company, based on their pre-IPO reviews. We require that five or more reviews be available for each sample firm before the IPO date. This results in a sample of 276 companies with an IPO date over the sample period. On average, there are 60 reviews for each company in our sample. Table 1-1 provides more detail about the data. Table 1-1-A reports the total number of U.S. IPOs from 2008 to 2015 along with the number of IPOs in our sample. As the table shows, our sample covers about one fourth (22.5%) of all US IPOs between 2008 and 2015. The table reports the total number of pre-IPO reviews on Glassdoor each year in the sample. The average is more than 2100 pre-IPO reviews each year.

Table 1-1-D provides a correlation table for the various employees' opinions from Glassdoor. Not surprisingly, the correlations between employees' opinions are quite positive. We club the opinions into two natural categories that we believe capture somewhat different dimensions of employees' opinions: Those corresponding to opinions about firm quality and prospects and, second, those corresponding to the employee's personal satisfaction and well-being.

Our first variable category encompasses "employees' opinions about the firm" within which we include the following five variables that we believe to be most directly related to firm quality: overall rating, CEO approval, opportunity rating, recommend to friend, and outlook rating. Given the relatively high correlation between different aspects of employee opinions, we rely on Principal

[16]The website says: "To maintain data quality and ensure each post is within our Community Guidelines, we review every post before it appears on the site."

Components Analysis to distill their overall opinion about firm quality and prospects. Analysis indicates that only the first principal component has an eigenvector greater than one. Our label for the first Principal Component is QualityRating.[17]

In our analysis, we also consider employee opinions that can be regarded as employees' 'personal satisfaction' with her employment. In this category, we include the variables Compensation rating and Work-Life balance rating. The Principal Competent obtained is labeled SatisfactionRating.[18]

In our regressions with employees' opinions, we include a variable to control for the 'intensity' of reviews, since the relative volume of reviews could be related to the quality of information in the reviews. In particular, we use the ratio of number of reviews to the number of employees working for the firm as a control variable. In our analysis, we also consider the dispersion of opinions among firms' employees and its relation to post-IPO stock volatility. For this we use standard deviations of employee opinions variables for each firm. Variable definitions are provided in Appendix A. Additionally, we note that, given their voluntary nature, employee reviews might be mainly populated by those with especially positive or negative views. In principle, this could result in the opinions being bimodally distributed. However, an examination of data (Table B-14 in Appendix B) shows that this is not the case.[19]

1.3.2 IPO Data

We use SDC Platinum Thomson Reuters to obtain IPO data including the offer date, initial-day return and several control variables that have been used in the literature on IPOs. Among our control variables are IPO Size, measured by the natural log of primary dollar amount offered; OfferPrice which is the natural log of the IPO offer price; FirmAge, measured as natural log of one plus the difference between the year company founded and IPO year;[20] and Nch2Wbef which is the percentage change in NASDAQ index in the two weeks just prior to the IPO date. We

[17] QualityRating is 96% correlated with Overall rating, 88% with Opportunity Rating, 94% with Recommend rating, 79% with Outlook rating, and 86% with CEO approval rating.

[18] SatisfactionRating's correlation with components: Equally 56% for both Work-Life balance and Compensation.

[19] For instance, over 2/3 of the OverallRatings (1 star is lowest and 5 star is highest) are from 2 to 4 stars. The mean is just over 3 stars with a standard deviation of over 1-star. The Kurtosis is 1.8 suggesting a distribution that is, if anything, "lighter-tailed" than the normal.

[20] Date the company was founded is often missing on SDC. Missing dates is filled in manually from companies' profiles on stock markets websites and other online sources.

also use several indicator variables defined as follows: VC equals one if the company is venture capital backed, PE equals one if the company is Private Equity backed. D_offerUP equals one if the IPO offer price is higher than the mid-filing price, D_offerDown equals one if the IPO offer price is lower than the mid-filing price. D_tech equals one if the company is technology based.[21] D_topUnderwriter equals one if the IPO underwriter is one of the top ten underwriters based on SDC's ranking. D_big4 equals one if the firm's audit company is one of the big four audit companies in the US.[22] Other IPO variables were employed as well. Definitions of variables and their sources are provided in the Appendix A.

1.3.3 Firm and other variables

We use Compustat to obtain firm data. Of our firm variables, Emp is defined as natural log of the number employees in the firm,[23] while DRD is a dummy variable equal to one if the firm's R&D expenditure for the IPO year is non-zero.[24] We also define RD as the IPO year research expenditure divided by the firm's total sales in the IPO year. Our measure for volatility is standard deviation of daily excess returns over a period of one year.[25] We use Fama-French 38 industry classification in our tests.[26] For some of our analysis we control for (and compare) the "tone and language of official forms" (S-1 and 424 (SEC-Edgar)) submitted by firms' executives to SEC before IPOs. As Loughran and McDonald [2013] show, IPOs with high levels of uncertain words in S-1 have higher IPO day returns, absolute offer price revisions, and subsequent volatility. We collect these forms from the US Security and Exchange Commission website, and the Loughran-McDonald master dictionary from McDonald's website.[27]

[21] Following Jay Ritter's definition, a company is considered to be a tech firm if it has one of these SIC codes: 3571, 3572, 3575, 3577, 3578, 3661, 3663, 3669, 3674, 3812, 3823, 3825, 3826, 3827, 3829, 3841, 3845, 4812, 4813, 4899, 7370, 7371, 7372, 7373, 7374, 7375, 7378, 7379.

[22] PWC, Ernst and Young, KPMG, and Deloitte.

[23] Since this variable has many missing values on Compustat, we corrected the missing values using the manually found data.

[24] Missing RD expenses (variable xrd in Compustat) are taken to be zero.

[25] We can also use standard deviation of raw daily return instead of excess return, and results remain the same.

[26] The results are similar when we Fama-French 48 instead.

[27] Loughran-McDonald's master dictionary is used. The dictionary publicly available here: www3.nd.edu~mcdonaldWord_Lists.html.

1.3.4 Summary Statistics

Summary statistics are provided in Table 1-1-A to D. As noted, Panel A provides information by year on the number of IPOs and the number of reviews in our sample as well as the total number of IPOs in the U.S. We provide additional information about the distribution of sample IPOs across industries, relative to the full sample of US IPOs in Figure 1. As the figure suggests, the industrial distribution of our sample is roughly similar to the industrial distribution of full set of IPOs over the sample period.

Table 1-1-B provides a comparison of IPO characteristics in our sample and that of all IPOs in the US over the sample period. As indicated, the average IPO offer size in our sample is $246 M, which is larger than the average size of $192 M for all US IPOs over the sample period. We also have more Tech firms in our sample. While 20% of all IPOs in the US were in Tech industries over this period, about 37% of our sample is related to Tech industries. This could reflect differences among employees in terms of their familiarity with the Glassdoor website. We also have relatively more VC-backed IPOs in our sample. While 31% of all U.S. IPOs were VC-backed over this period, 38% of our sample are VC-backed IPOs. Our sample of IPO firms have an average age of about 6 years, which is somewhat younger than the average age of 8.6 years among all firms going public in the US over this period. Table 1-1-C provides detailed summary statistics for the main variables used in the chapter, while Table 1-1-D provides a detailed correlation table among employees' reviews collected from Glassdoor.

1.4 Empirical Analysis

1.4.1 IPO Performance: Univariate Evidence

We begin by providing univariate evidence on the relation between employees' pre-IPO opinions and post-IPO performance. As indicated in Table 1-2, IPO firms with higher than median QualityRating tend to have significantly higher initial period post-IPO excess returns than those with below median rating. For instance, while one day (one week) average excess returns for the above median QualityRating IPO firms is 26.78% (26.42%), the excess returns for the below median QualityRating

average 17.10% (17.43%). As indicated, return patterns are similar over two and four-week windows post-IPO. We next turn to multivariate regression analysis in order to control for various firm and IPO attributes that have been shown to be related to short-term and also longer-term stock performance following IPOs.

1.4.2 Multivariate Analysis of IPO Performance

Table 1-3 provides regression estimates of the relation between an IPO firm's initial and subsequent stock performance and the various Glassdoor variables that reflect employee opinions about firm and managerial quality. While we will primarily use QualityRating, principal component of employee quality opinions, we begin by presenting regressions in which each of the five quality opinion variables is included separately.[28] These correlated opinion variables are found to be similarly related to post-IPO stock returns, providing further reassurance about our use of these variables to construct QualityRating. As indicated in Table 1-3, we estimate post-IPO firm performance over six different time horizons from 1-day to 1-year after the IPO-day. Following the literature, excess returns are defined as percentage change in stock price minus percentage change in NASDAQ during the appropriate interval. The regressions include year and industry (Fama-French 38) fixed effects,[29] along with clustering at industry level. Each of these employee response variables are significantly and positively related to post-IPO performance over most of the time horizons considered.

In Table 1-4 Panels A-C we report regressions in which post-IPO stock performance over different time horizons is related to the employee opinion variable QualityRating, using a variety of specifications. The regressions include year and industry fixed effects, with clustering at industry level. As indicated in Table 1-4-A, employee opinions about firm quality are significantly related to stock excess returns for up to six months (180 days) after the IPO date. The R^2 in these regressions is in the range of 20%, similar to the regression models in Table 1-3. In Table 1-4 Panels B and C, we estimate similar regression models that include several firm and IPO variables that have been

[28] These five variables are: overall rating, CEO approval, Outlook (firm prospects), opportunity rating, and the recommend to friend rating. (Variables definitions can be found in Appendix A)

[29] Results are similar if we use other industry groupings e.g., Fama-French 48 industries.

commonly employed in the IPO literature. Our results show that QualityRating is significantly predictive of post-IPO excess returns for different horizons up to a year after the IPO. These results, supportive of Hypothesis 1, are consistent with employees having valuable information that is not reflected, for instance, in the setting of the IPO offer price. As we show later, the information in employees' views does not appear to be immediately incorporated in the stock price after the IPO and is predictive of the IPO firm's stock performance even when the initial one or two weeks are excluded. As indicated, the addition of the firm and IPO control variables increases R^2 of the regressions to about the 30% range. The magnitude of the estimated coefficients on QualityRating in Panels B and C tends to be smaller than in Panel A, though they remain economically and statistically significant. In terms of economic importance, 1-standard deviation higher QualityRating in the pre-IPO period is associated with 3.78% (5.83%) larger one-day (60-days) excess return after the IPO.[30]

The estimated coefficients on various control variables in Panels B and C are generally consistent with findings in the literature: Offer Price (in log), as well as the indicator variables for private equity backed (PE) and venture capital backed (VC), are positively related to excess returns over several time windows. Also, indicators for whether the IPO offer price was above (below) the mid-range of the filing price range D_offerUP (D_offerDOWN) are positively (negatively) related to excess returns as anticipated (See Hanley [1993]).

In the regressions, we include reviews as a control variable. This variable represents the intensity of reviewing by employees and is measured as the ratio of number of pre-IPO reviews for the firm, divided by the number of employees.[31] The reason to include the variable is to address the concern

[30]Calculation based on standard deviation of QualityRating (Table 1-1-B) and coefficients on 1-day and 60-day excess returns (Table 1-4-C). See footnote 3.
Using normal standardized scales. Look at Panel A and B on Table B-8 in Appendix B for more details.

[31]Here, may be a concern about the firm age effect on variable "Reviews" saying that firms that have been in existence a longer time will have more reviews. First, to take care of this we have "Firm age" as a control variable in our tests (variables definitions can be found in Appendix A). Second, looking at the ages in firms that go public, we can say IPO firms are generally young, and their age's variety is not high. Third, we can also change our "review" variables in different ways. If we calculate "reviews" as the ratio of [number of Glassdoor reviews collected during the last year before the IPO], and [the number of employees working for the firm during the IPO year], or as log of one plus the ratio just mentioned, we would have the same significant results for our employee opinions variables. Results are insignificant for the "review" variable. We can also calculate "review" variable as log of number of reviews, log of number of employees, or adding a dummy for firms that have high number of reviews, again employees' variables of concern would be remained significant.

that there could be correlation between the reviews' intensity and excess return after the IPO.[32] For most horizons (other than 1-year), the variable is insignificant. As a robustness check we also estimate WLS regressions instead of OLS, in which the variable reviews can be used a weight for regressions. The WLS regression results are presented in Table B-1 in appendix B and show that the results are largely unaffected. Again, regressions include year and industry fixed effects and are clustered at industry level.

Our next step is to examine whether the information in employee's opinions is partly captured by executives' disclosures that are made as a part of the IPO process. Consistent with the notion that ex ante uncertainty is associated with greater initial day returns (Beatty and Ritter [1986]), some recent textual analysis research examines executives' disclosures before the IPO to develop measure of uncertainty. These tests rely mainly on the textual analysis of two forms S-1 and 424 that companies are required to submit to the SEC prior to the IPO[33] (e.g., Loughran and McDonald [2013]). Two elements in both forms that appear to be most informative about post-IPO performance are[34]: the number of times a company resubmitted each of these forms, and the level of uncertainty in them. The level of uncertainty is measured by the percentage of uncertain words (e.g., Loughran-McDonald master dictionary) used in the submitted text.

Table 1-5 Panels A and B replicate the results for the relation between post-IPO excess returns and four text mining variables for our IPO sample.[35] Panel A presents results when we include no control variables other than industry and year fixed effects. In Panel B we include all the control variables from Table 1-4 Panel C. As indicated, there is a significant relation between some text variables and post-IPO returns at various horizons. For instance, as shown in panel B, the number of times a company submitted form S1 (countS1) is positively significantly related to post-IPO stock returns over 1W, 4W, and 60D horizons.

Our main interest is in Panel C, where employees' views on firm quality are included in the regressions, along with the text mining variables (executive disclosures) as well as all other control

[32]The reviews variable controls for correlation between the number of employees' reviews and firm performance.
[33]The submission process of these forms may be repeated several times based on SEC's required changes.
[34]There are some other elements as well; we pick two for which the evidence appears strongest.
[35]These are percentage of uncertain words in form S-1 (PerS1), percentage of uncertain words in form 424 (Per424), number of the time the company has submitted form S-1 (countS1), and number of the time the company submitted form 424(Count424).

variables. As indicated, QualityRating is significant over the various horizons considered, despite the presence of the executives' disclosure variables in the regressions.[36] This is consistent with the notion that, at least for our sample, employees' opinions reflect somewhat different information, compared to disclosures that managers make to the SEC. It is plausible that the process of setting the IPO offer price could result in executives' information being incorporated to a different degree in the offer price, than that of other employees.

A concern with regard to our results is that they could be affected by employee opinions that are provided during the final three months before the IPO (by when the IPO is likely to have been publicly announced). At this stage, it is conceivable that employee opinions are affected by the upcoming IPO and outsiders' views about it. As a robustness check, we repeat our tests after dropping employee reviews submitted during the 90 days just before the IPO. As reported in Table B-2 (Appendix B), our results are not substantially altered by the dropping of these observations.

The literature (see Kim and Ritter [1999]) proposes several relative value measures that are intended to capture the fundamental value of the stock offered in an IPO, based on the firm's asset and sales information, compared to its offer price. In Table 1-6 we provide regression estimates relating the relative value measures to employees' opinions. As indicated, Table 1-6 shows that there is a positive and significant relation between QualityRating and the value estimates of the IPO stock compared to its offer price using three different variables (prcAs1, prcAs2 and PS-ratio).[37] These results are consistent with the partial adjustment of offer prices by underwriters, when they expect the IPOs to perform well (see Hanley [1993]). This could suggest that underwriters are responding to some of the same signals as employees in that they raise the offer prices, though only partially. To investigate whether these stock value variables can explain some or all of our findings on employee opinions, we estimate regressions using the specifications in Table 1-4, along with adding these value variables. Our results (Panels A and B, Table B-3 in Appendix B) show that QualityRating (and SatisfactionRating considered later) remain significant, in explaining post-IPO

[36]The percentage of uncertain words in S1 is highly correlated with the percentage of uncertain words in form 424.To ensure that our results are not affected by the correlation, we estimate regressions by including only the S1 form variables (Table B-5) or only including those from form 424 (Table B-6). Both Tables B-5 and B-6 in Appendix B show that our main results are robust.

[37]PrcAs1 is the ratio of offer Price over total asset per share of the firm before the IPO. PrcAs2 is the natural log of one plus the PrcAs1. PSratio is the ratio of offer price over total sale per share at the IPO year.

performance, while the value variables are generally insignificant Hence, it appears that, at least in our IPO sample, employee opinions are more informative and are not subsumed by the information in the value variables.

1.4.3 When are employees' opinions more informative?

We expect that the informativeness of employee opinions may vary depending on the nature of the firm and IPO. Specifically, the presence and reputation of financial intermediaries could affect the IPO price setting process and the informativeness of employee views. We explore this issue in several different ways and the results are provided in Table 1-7.

The first four columns in Table 1-7 test for the effect of different financial intermediaries on the information content in employees' opinions. For instance, in column 1 we look at predictability of the employees' opinions in the presence (or absence) of venture capitalists using interactions of QualityRating] with an indicator for VC presence. Results show that QualityRating appears more informative and valuable in the presence of venture capitalists in the IPO process. Similarly, the presence of top underwriters and presence of big four audit companies tends to strengthen the effect of QualityRating. These results are somewhat counter-intuitive since, in general, we might expect the presence of VCs and higher quality intermediaries to decrease information asymmetry in the market. A possibility may be that the nature of firms that are backed by VCs and/or rely on higher quality intermediaries may be less transparent and more reliant on human capital, consistent with employees being in a better position to evaluate firm quality. Younger and Tech firms are usually associated with higher information asymmetry, which tends to result in higher underpricing (Rock [1986] and Beatty and Ritter [1986], Michaely and Shaw [1994]). Interestingly, employee opinions are less informative in the presence of Private Equity. Again, this may have to do with the types of firms that tend to have PE backing. For instance, firms with PE backing are likely to be firms that had become private, being brought back to the market via an IPO.

Next, we look at the effect of "more employees' reviews", which is shown in two columns. Considering employees' opinions as a source of information, it is plausible that more reviews are associated with more widely shared views that are also more likely to be incorporated in the setting

of the IPO offer price. In this case, the incremental information in employee opinions may be lower and they may be less predictive of the IPO firm's stock performance. In column 6 we interact a dummy based on the raw number of reviews[38] with QualityRating, along with various controls such as firm size and age. Consistent with expectations, we find that QualityRating is less informative when we have more reviews.[39] We next use a dummy that is based on the variable reviews, in which the number of reviews is scaled by the number of firm employees. As indicated in column 7, results are similar for the scaled measure. Hence, opinions expressed by a larger volume (or fraction) of employees is associated with the opinions having lower incremental information.[40]

Finally, we examine the informativeness of employees' opinions when the firm's net income is negative. As results show in Column 5, QualityRating is more informative when the firm has negative net income in the year before the IPO. This is consistent with the incremental information in employee opinions being especially high when there is greater uncertainty about the value and prospects of the IPO firm, as is likely when the firm going public has negative income.

1.4.4 Do employee opinions predict performance beyond a short post-IPO period?

An issue of some interest is whether the information in employees' is incorporated in post-IPO stock prices almost immediately after the IPO. If this was the case, it would suggest that, despite the offer price not adjusting fully in response to employee information, the stock market does rapidly incorporate employee information because of, say, some investors acquiring information and/or the participation by employees in the IPO market. As a test, we investigate whether employees' opinions are predictive of post-IPO stock returns even when some of the initial trading days after

[38]Raw number of reviews: number of reviews when it is not adjusted by the number of employees.

[39]Here, in column 6 we use a dummy for high number of reviews, which is equal one if the firm's raw number of reviews is more than average plus standard deviation of raw number of reviews in the whole sample. In column 7 we repeat the test while we calculate the dummy using our "reviews" variable. Which is raw number of reviews adjusted by the firms' number of employees.

[40]Here, the objection of scaling reviews by time is irrelevant. Here, we want to test the effect of more employee reviews (versus less) on it validity and predictability power. The notion is employee opinions can be predictive because of its insider information nature. Logically its validity lasts longer if it leaks slower to the public. So, regardless of the fact that some firms may have been in existence for a longer time, and we may have more reviews from these older firms, we are testing the effect of information leakage through more employee reviews on employee opinions predictability power. The same logic can be used to avoid scaling reviews by the number of employees. to take care of this, we test for both scaled number of reviews by firms' employee, and also raw number of reviews which is not scaled by anything.

the IPO are excluded. Specifically, we test whether QualityRating is predictive of post-IPO returns even after we exclude excess returns over the initial IPO day or the first one or two weeks after the IPO.

Tables 1-8-A and 1-8-B provide these results. Table 1-8-A shows that QualityRating is significantly related to excess returns for various horizons up to 1-year, when we drop the IPO day excess return. Not only do the coefficients remain significant, but the magnitude of the estimated coefficients is similar to those reported in Table 1-4. Table 1-8-B sub-panels B1 and B2 reports result for when we drop one week and two weeks of excess returns following the IPO. As indicated, QualityRating remains significantly predictive of excess returns up to 180 days after the IPO. These findings suggest that employees' information is not immediately reflected in stock market prices and that it may be several days before the stock price fully adjusts to employees' pre-IPO information. Table B-4 in Appendix B shows that employee opinions about the quality of their firms remain significant if we exclude even longer periods after the IPO such as one or even two months.

1.4.5 Testing Hypothesis 2

Next, we test our Hypothesis 2 by comparing the divergence (or uncertainty) in employees' opinions before the IPO, and volatility of excess returns after the IPO. Table 1-9 reports the results for employees' uncertainty about their opinions about the quality of the firm measured by standard deviation of the opinions. The dependent variable is the standard deviation of daily excess returns calculated over the period from IPO day till 365 days (calendar days) after that date. We also add "filing range" (the anticipated range of offer prices indicated at the time of the firm's SEC filing) as another control variable in the regression since it may proxy for pre-IPO uncertainty.[41] Filing range is defined as: log of one plus the ratio of the low price to high price of the filing price range.

The first column in Table 1-9 reports regression estimates with standard deviation of QualityRating (QualityRatingSD) and no control variables other than industry and year fixed effects. The results show that employees' pre-IPO uncertainty is positively and significantly related to post-IPO market uncertainty, supportive of Hypothesis 2. In models 2-7, we include additional control

[41] Hanley [1993] shows that this range, interpreted as indicator of pricing uncertainty, is related to IPO underpricing. See Appendix A for the variable LHratio) definition.

variables. We begin by adding control variables from Table 1-4 Panel C to the regression. The results are robust to the (sequential) inclusion of additional variables such as the six months excess return, filing range[42] (explained above), and executives' disclosure of their uncertainty (from Table 1-5) to the model.

The literature suggests that if an IPO is expected to have strong demand, underwriters will, in part, respond by increasing the size of the offering.[43] This suggests that there is likely to be a positive relation between IPO offer size and employees' opinions. Table 1-10 shows the relation between the IPO size and employees' opinions before the IPO. As indicated in the table, QualityRating is positively related to offering size, controlling for various firm and IPO related variables. This is consistent with employee pre-IPO opinions being positively associated with stronger anticipated demand for the IPO, as reflected in a larger offering size.[44]

1.4.6 Test of Hypothesis 3: Employee Satisfaction and post-IPO stock performance

Our next test examines the potential relation between employees' satisfaction and post-IPO performance. There are several empirical studies that suggest satisfied employees are more likely to be productive. However, as discussed in connection with our Hypothesis 3, it is possible that employee satisfaction, after controlling for opinions on firm quality, are inversely related to firm performance. A possibility, as we suggest, is that employees may be more satisfied if, other things being the same, the firm's management is inclined toward a "quiet-life" approach to employees, which may tend to come at the expense of firm value.

Our results are presented in Table 1-11. Since there is no obvious way in which to introduce employee satisfaction in conjunction with opinions on firm quality, we consider some alternative approaches before settling on one. First, we use the Principal Component Analysis approach to extract a single variable using all the different ratings (aggregateRating). The notion is to see

[42] LHratio. See Appendix A for the variable definition.

[43] Lowry et al. [2017] and Ellis et al. [2000] document the IPO and underwriter's role in detail. As a quick note we can address the fact that underwriters usually sign a letter of intent with the issuers which its main point is letting the underwriters sell 115% of initial offer size when the underwriters assessments show the IPO would be successful.

[44] Size does not however appear to be related to post-IPO performance. In our post-IPO performance regressions (e.g., Table 1-4 Panel C) we included indicators for offering size because this is common in the literature. These variables tend to be insignificant and dropping them has little effect on the variables of interest.

whether a single variable can capture firm quality as well as employee satisfaction. In column 1 we present a regression in which we examine the relation between aggregateRating and one day IPO returns. While the variable is significantly positively related to one day returns, it is apparent that the statistical significance is weaker than when QualityRating is employed separately.

In columns 2 and 3 we consider alternative specifications in which we include the two satisfaction variables (opinions on compensation rating and work-life balance rating) individually along with the QualityRating variable using the one-day return as the dependent variable. As shown in columns 2 and 3, both Compensation Rating (column 2) and Work-Life balance rating (column 3) are negatively significant when we control for QualityRating. Our next step is to add both Work-Life balance and Compensation Rating simultaneously to the regression. As Column 4 shows, both the variables remain negatively significant when we control for QualityRating. Since the two variables affect one-day returns in a similar fashion, our next step (in Column 5) is to extract a PCF variable using Work-Life balance and Compensation Rating as a measure of employee satisfaction that we label SatisfactionRating. Results show SatisfactionRating is negatively significant while we control for QualityRating in the regression.

As indicated in the correlation table (Table 1-1-D), the components of QualityRating and SatisfactionRating are quite strongly positively correlated. To ensure that our results are not sensitive to the correlation between the variables, we orthogonalize the variables by regressing SatisfactionRating on QualityRating and use the regression residuals in place of the original variable. We call the new variable "Adjusted" SatisfactionRating. Tables 1-11 shows that using adjusted SatisfactionRating gives us virtually the same results as in column 5. In Panels B and Panel C of Table 1-11, we report results for adjusted and unadjusted SatisfactionRating. As indicated, Adjusted SatisfactionRating is negatively significant. Not surpassingly, Unadjusted SatisfactionRating is estimated with a positive coefficient (in the absence of QualityRating), given its high correlation with the other employee opinions.

We next estimate regression results using excess stock returns over various horizons as in earlier regression tables, using adjusted SatisfactionRating and QualityRating as explanatory variables. Our interest is in testing whether adjusted SatisfactionRating has a significant negative effect on

firms' excess return over different time horizons, controlling for QualityRating. Results are provided in Table 1-12 Panel A to C. Other than adding adjusted SatisfactionRating, the specifications are similar to those in Table 1-4-A to C. Overall, the results show that adjusted SatisfactionRating has a significantly negative effect. In particular, in Table 1-12 Panel A we include both QualityRating and adjusted SatisfactionRating with no control variables other than year and industry fixed effects. In Panel B, we add control variables used in Table 1-4 Panel B and in Panel C we add all control variables we used in Table 1-4 Panel C. Results show adjusted SatisfactionRating is negatively significant while QualityRating remains positively significant in explaining excess stock returns. As indicated, QualityRating is significantly related to excess stock returns for various horizons, including a year after the IPO, while the adjusted SatisfactionRating's relation to excess stock returns is significant for a few weeks.

By estimating the regressions with both employee variables included, we hope to obtain a more reliable measure of the economic magnitude of the relationship between employee opinions and post-IPO performance. In terms of economic importance, one standard-deviation increase in employees' pre-IPO opinions about the quality of their firms is associated with a 0.123 (0.185) increase in standard deviation of one day excess returns (four weeks excess return); and one unit increase in standard deviation of employee's pre-IPO satisfaction is associated with a .193 (.146) standard deviation decrease in one day excess returns (four weeks excess return).

In additional tests, Table B-9 in Appendix B shows that the results are robust to adding the four executive disclosure variables related to forms S1 and 424. Tables B-10 and B-11 in Appendix B show SatisfactionRating remains significant for only one week after the IPO if we exclude the initial day return. Moreover, results suggest that, unlike dispersion in employees' views about firm quality, the dispersion in employees' satisfaction does not predict post-IPO stock excess return volatility when we include the control variables used in earlier tables. Results are tabulated in Table B-12 in Appendix B.

1.4.7 Testing Hypothesis 4: Changes in employees' opinions in response to IPO performance

In this section, we study the impact of the IPO's initial performance on employees' opinions about firm. As we have argued, maintaining employees' morale could be an important consideration in the IPO pricing process. In Table 1-13-A we divide changes in employees' opinions based on different IPO initial-day excess returns. We measure changes' in employees' opinions as the difference between QualityRating (SatisfactionRating) calculated over the six month period from the IPO date to six months after the IPO, minus QualityRating (SatisfactionRating) calculated using employees' opinions in the six month prior to the IPO date.[45] As indicated in Table 1-13-A, we see a dramatic drop in employees' opinions if the firms' IPO day excess return is negative, while there is a considerable upward jump in opinions if the initial-day excess return is positive. To the extent that firms consider employee morale to have significant value implications, this finding is consistent with firms choosing to raise lower proceeds by underpricing its IPO, rather than to risk a negative initial-day return with its large negative impact on employee opinions regarding firm quality.

Interestingly, we find the opposite effect for changes in SatisfactionRating. There is a substantial drop in adjusted employees' satisfaction in firms that have a positive initial-day excess return, compared to firms that have negative initial-day excess return. We find these results to be quite curious. A possible interpretation is that while positive IPO returns boost employee opinions about firm quality – there may be some concern about its effect on employees' work-life balance. Results also show employees' dispersion in SatisfactionRating increases substantially among firms that have a negative initial-day excess return. Figure 2 shows these changes graphically.[46]

In Table 1-13-B we compare changes in opinions in response to a different type of IPO 'failure', when firms withdraw their IPOs. Somewhat surprisingly there does not appear to be a significant change in employees' opinions due to IPO withdrawal when we compare opinions in the year before and after the withdrawal date. It is difficult to draw definite conclusions given the relative small

[45] Variables names are QualityRating Gap and SatisfactionRating Gap

[46] This is true only for adjusted SatisfactionRating. Unadjusted SatisfactionRating follows the same as QualityRating. It means the gap would be higher for firm who had positive initial day return.

number (30) of the withdrawn offerings in our sample.[47] Nevertheless, a reason why employees' response to IPO withdrawals may not be especially negative is because they may typically expect the IPO to be delayed only briefly and/or caused by factors beyond the control of the firm's management. This finding could shed some light on firms' decisions on withdrawals. Assuming that firms consider employee morale important for firm value, then the above results suggest that firms would much rather have a withdrawn offering, than one with a negative market response.

Do employees care whether their firm is publicly traded or not? We examine the change in employee opinions due to their firm going public: specifically, the average change in their opinions when their firm converts from private to public regardless of its performance during the IPO. In Table 1-13-C we show the results when we compare changes in employees' opinions six months after the IPO, to six months before the IPO. It seems that employees' opinions do not appear to change substantially simply on account of their firm going public. A concern here is that we may not observe a significant change in employees' opinions because our pre-IPO period includes months in which employees are already aware of the firm planning an IPO in the near term. We, therefore, examine whether dropping employee's opinions in the three months prior to the IPO affects these results (Table B-7, Appendix B): we again find no substantial change in employees' opinions as a result of the firm going public.

In Table 1-13-D we examine changes in employees' opinions over longer periods prior to IPO. In particular, we compare employees' opinions in the last six months before the IPO, with their opinions prior to that date, going back to the firm's foundation date or Glassdoor initiation date, whichever happens first. Results presented in Table 1-13-D shows that employees' opinions about the quality of their firms does improve over the time leading up to the IPO. This is not especially surprising and is consistent with employees' developing a more positive opinion about their firm as it succeeds over time and moves toward becoming a public firm.

[47] If we compare six months before and after the withdrawal date, the sample is smaller (22 firms), but the results remain similar. Change in number of firms in the sample is due to presence/lack of reviews (in plus and minus six-month period, compared to one-year period) for firms that withdrew the IPO.

1.5 Conclusion

In this chapter we use Glassdoor data to shed light on the incremental information content in employees' opinions about their firms. While insider information is generally understood in terms of executives' information, we find that opinions of non-executive employees, at least in aggregate, appear to have valuable information that is predictive of their firms' performance following an IPO. Our finding is that employees' information about their firm quality is not being fully captured in the IPO offer price, despite the presence of reputed underwriters, audit firms, or VCs during the IPO process. We show that employees' pre-IPO opinions are informative about post-IPO performance for up to a year. The results hold even after excluding the initial period following the IPO, suggesting that employees' information is incorporated into stock market prices only gradually. The results are robust to the inclusion of an extensive set of firm and IPO control variables, including executives' disclosure in the IPO context. Our findings also show that dispersion in employees' opinions before the IPO is correlated with stock-volatility for up to a year after the IPO.

In addition to firm and managerial quality, Glassdoor asks employees' opinions on their personal level of satisfaction in the firm (work-life balance and compensation). The opinions on personal satisfaction provide a somewhat different dimension of employee's opinions. In particular, a striking finding is that the component of personal satisfaction that is not related to firm quality is significantly negatively associated with the firms' performance. This suggests that, controlling for firm quality, greater personal satisfaction of employees could come at the expense of shareholders.

Employees' opinions are more or less informative depending on context. For instance, employee opinions are more valuable when the firm reports negative net income the year before, possibly because these firms may be especially difficult for outsiders to evaluate. On the other hand, these opinions tend to be less valuable when provided by more (or greater share of) employees. This could be because a high volume of reviews may reflect widely shared views about the firm – views that are incorporated in setting the IPO offer price. We find that the presence of VCs, big-four audit firms, and top underwriters is associated with employee opinions being more informative. This may be reflective of firms in which human capital is more important (say IT firms) and where

employees may be better positioned to evaluate firm quality than outsiders.

We studied changes in employees' opinions over different intervals and situations. Results show negative (positive) initial-day excess returns depress (raise) employees' views about the quality of their firms. To the extent employee morale is important for firm value, this suggests that firms might prefer to leave money-on-the-table, rather than risk a loss of employee morale. We do not find a significant change in employees' opinions when there is an IPO withdrawal (small sample). This could suggest that employees usually see a withdrawal as a brief delay, rather than a negative signal about firm prospects. Somewhat interestingly, employees' opinions do not tend to change just because their firm goes public. As we might expect, firms that eventually go public are associated with employees' opinions improving in the years leading up to the IPO.

Appendix A

VARIABLE	SOURCE	DEFINITION
Employee Opinions		
CEO approval	Glassdoor	Employees' opinions about CEO: Approve, disapprove, or neutral responses are converted to +1, -1, and 0.
Compensation rating	Glassdoor	Employees' ratings of their compensation: From 1 to 5. Where 5 stands for the highest rating.
Work-Life balance rating	Glassdoor	Employees' ratings about their Work-Life balance: From 1 to 5, where 5 stands for the highest rating.
Senior management rating	Glassdoor	Employees' opinions about senior management: From 1 to 5, where 5 stands for the best rating. (high number of missing in the data)
Opportunity rating	Glassdoor	Employees' opinions about growth opportunities within the firm: From 1 to 5, where 5 is the highest rating.
Culture rating	Glassdoor	Employees' opinions about culture within their firm: From 1 to 5, where 5 is the highest rating (large number of missing in the data).
Recommend to friend	Glassdoor	Employees' answers to question: Do you recommend your company to a friend? The answer could be yes, no, or abstain. Converted to +1, -1, and 0
Outlook rating	Glassdoor	Employees' opinions about their companies' outlook. It can be positive, negative, and neutral. Converted to +1, -1, and 0.
QualityRating	Glassdoor	Principal Component Factor (PCF) variable obtained from Overall rating, Opportunity rating, Recommend to friend, CEO approval and Outlook.
SatisfactionRating	Glassdoor	PCF variable obtained from Work-life balance rating, and Compensation rating.
QualityRatingSD	Glassdoor	PCF variable from the Standard deviations of Overall rating, Opportunity rating, Recommend to friend, CEO approval and Outlook.
SatisfactionRatingSD	Glassdoor	PCF variable from the Standard deviations of Work-life balance rating, and Compensation rating.
D_H_Reviews	Glassdoor	Dummy equals one if the firm has more employee reviews than the mean plus standard deviation of the full sample of reviews.

VARIABLE	SOURCE	DEFINITION
Firm Financial and Return Data		
D_industry	K.French website	Fama-French 38 industry classification.
one-year volatility	CRSP	Standard deviation of daily excess return from IPO day to 365 days after the IPO, where daily excess returns are calculated as daily holding period return minus value weighted market return.
NASDAQ IPO day	CRSP	Percentage change in NASDAQ during the IPO day.
DRD	Compustat	Dummy equals one if the company's research and development expenses is neither zero nor missing in the IPO year.
RD	Compustat	Ratio of RD expenses (RDX) to total sales in IPO year.
Reviews	Glassdoor Compustat	Ratio of number of Glassdoor reviews before the IPO to number of employees working for the firm.
D_nNi	Compustat	Dummy equals one if net income in the last year before the IPO is negative.
Emp	Compustat	Number of employees working for the firm.
Per424	SEC	Percentage of uncertain words used in form 424. In case the form submitted more than once, it is the average of all. (List of uncertain words from McDonalds and Loughran master dictionary).
PerS1	SEC	Percentage of uncertain words used in form S1. In case the form submitted more than once, it is the average of all. (List of uncertain words from McDonalds and Loughran master dictionary).
Count424	SEC	Number of time the company submitted form 424.
CountS1	SEC	Number of time the company submitted form S1.

VARIABLE	SOURCE	DEFINITION
IPO data from SDC		
IPO size	SDC	Natural log of primary dollar amount offered.
Firm age	SDC	Natural log of one plus the difference between the year company founded and IPO year.
PRICE	SDC	Natural log of IPO offer price.
D_Price	SDC	Dummy equals one if the offer price is greater than 10 dollars.
VC	SDC	Dummy equals one if the company is venture capital backed.
PE	SDC	Dummy equals one if the company is private equity backed.
Nch2Wbef	SDC	NASDAQ change (as percentage) two weeks before the IPO.
D_offerUP	SDC	Dummy equals one if the IPO offer price is higher than the mid filling price.
D_offerDOWN	SDC	Dummy equals one if the IPO offer price is lower than the mid filling price.
D_tech	SDC	Dummy equals one if the firm is in tech industry. A company is considered as a tech firm if it has one of these SIC codes: 3571, 3572, 3575, 3577, 3578, 3661, 3663, 3669, 3674, 3812, 3823, 3825, 3826, 3827, 3829, 3841, 3845, 4812, 4813, 4899, 7370, 7371, 7372, 7373, 7374, 7375 , 7378, 7379.
D_Large_size	SDC	Dummy equals one if the IPO size is greater than average IPO size of the sample plus standard deviation of IPO size of the sample.
D_Small_size	SDC	Dummy equals one if the IPO size is smaller than average IPO size of the sample minus standard deviation of IPO size of the sample.
D_Old	SDC	Dummy equals one if the company is older than the average age of the sample plus standard deviation of age of the sample.
D_young	SDC	Dummy equals one if the firm is younger than average age of the sample minus standard deviation of age of the sample.
D_big4	SDC	Dummy equals one if the associated audited firm is one of the big four audit companies: PWC, E&Y, KPMG, and Deloitte.
D_topunderwriter	SDC	Dummy equals one if the underwriter (or at least one of the underwriters in the IPO) is among top ten underwriters based on SDC ranking.

VARIABLE	SOURCE	DEFINITION
IPO data from SDC		
ex1D	SDC	Percentage change in price from IPO open price until the end of one day after the IPO, minus percentage changes in NASDAQ during the same period.
ex1W	SDC	Percentage change in price from IPO open price until the end of seven days after the IPO, minus percentage changes in NASDAQ during the same period.
ex2W	SDC	Percentage change in price from IPO open price until the end of two weeks after the IPO, minus percentage changes in NASDAQ during the same period.
ex4W	SDC	Percentage change in price from IPO open price until the end of four weeks after the IPO, minus percentage changes in NASDAQ during the same period.
ex60D	SDC	Percentage change in price from IPO open price until the end of 60 days after the IPO, minus percentage changes in NASDAQ during the same period.
ex90D	SDC	Percentage change in price from IPO open price until the end of 90 days after the IPO, minus percentage changes in NASDAQ during the same period.
ex180D	SDC	Percentage change in price from IPO open price until the end of 180 days after the IPO, minus percentage changes in NASDAQ during the same period.
ex1Y	SDC	Percentage change in price from IPO open price until 365 days after the IPO, minus percentage changes in NASDAQ during the same period.
prcAS.1	SDC	Ratio of [Offer Price] over [total asset per share before the IPO].
prcAS.2	SDC	(Natural log of one plus prcAS.1)
PSratio	SDC	Ratio of [Offer price] over [firms' total sale per share at the IPO year].
FilingRange (LHratio)	SDC	Natural log of one plus the ratio of [low price of filing price range] over [high price of filing price range]

Table 1-1-A. Summary Statistics

Presents distribution of data sample from Glassdoor about the US private firms that subsequently go public, and its comparison with the total US IPOs by year during the period of Jan. 1st 2008 to the end of Dec. 2015.

IPO year	Sample IPOs	All US IPOs	Number of Pre-IPOs Glassdoor reviews
2008	10	50	1043
2009	22	63	673
2010	41	165	2461
2011	53	143	1767
2012	52	146	3762
2013	47	230	3685
2014	39	261	2850
2015	12	164	852

Table 1-1-B. Summary Statistics

Panel B: Comparison of all IPOs in the US and our Glassdoor sample over the period Jan. 1st 2008 to Dec. 2015.

	Firm Size in Million $				
	Mean	St. Dev.	% Tech firms	% VC-backed	Av. Firm age (years)
All US IPOs	191.8	428.6	19.7	30	6.04
Sample IPOs	246	299	37	38	8.02

Table 1-1-C. Summary Statistics

Panel C: Summary statistics for sample variables.

Variable	Obs.	Mean	Std. Dev.	Min	Max
QualityRating	276	0.010	0.979	-2.24	2.70
SatisfactionRating	276	0.023	1.016	-2.34	2.98
Adjusted SatisfactionRating	276	0.015	0.541	-1.45	1.51
Overall Rating	276	3.040	1.373	1.00	5.00
Opportunity Rating	264	3.134	1.222	1.00	5.00
CEO approval Rating	276	0.152	0.728	-1.00	1.00
Outlook Rating	276	0.156	0.520	-1.00	1.00
Recommend to Friend Rating	276	0.033	0.908	-1.00	1.00
Work-Life Balance Rating	266	3.162	1.354	1.00	5.00
Compensation Rating	262	2.990	1.224	1.00	5.00
St dev of QualityRating	244	0.822	0.192	0.13	1.28
St. dev of SatisfactionRating	244	0.893	0.183	0.29	1.46
SP500	276	15.435	11.075	-36.55	32.15
Firm Age	273	2.233	1.061	0.00	4.70
IPO Size	251	18.828	0.969	16.58	21.32
PRICE (log)	271	2.764	0.380	1.61	3.69
D_Price (Dummy)	276	0.851	0.356	0.00	1.00
VC (Dummy)	272	0.386	0.488	0.00	1.00
PE (Dummy)	276	0.446	0.498	0.00	1.00
Nch2Wbef	271	0.256	2.491	-5.50	5.19
D_offerUP (Dummy)	276	0.290	0.455	0.00	1.00
D_offerDOWN (Dummy)	276	0.243	0.430	0.00	1.00
D_tech (Dummy)	276	0.373	0.485	0.00	1.00
D_topUnderWriter (Dummy)	276	0.880	0.325	0.00	1.00
D_big4 (Dummy)	276	0.880	0.325	0.00	1.00
D_young (Dummy)	276	0.152	0.360	0.00	1.00
D_old (Dummy)	276	0.159	0.367	0.00	1.00
D_large_size (Dummy)	276	0.167	0.373	0.00	1.00
D_small_size (Dummy)	276	0.105	0.307	0.00	1.00
Reviews	260	0.047	0.099	0.00	1.12
DRD (Dummy)	276	0.101	0.302	0.00	1.00
per424	239	1.550	0.240	0.78	2.25
count424	239	4.540	7.139	1.00	51.00
perS1	242	1.329	0.242	0.68	1.96
countS1	242	7.806	4.310	2.00	25.00
LHratio	272	0.615	0.052	0.35	0.85
RD	258	0.020	0.124	0.00	1.13
exIPOday	270	9.144	100.172	-167.10	442.51

Table 1-1-C Continued. Summary Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
ex1D	270	20.694	34.545	-135.80	133.66
ex1W	259	22.011	29.806	-22.30	142.32
ex2W	260	21.890	29.625	-27.68	116.43
ex4W	260	22.184	31.050	-25.63	127.12
ex60D	260	24.501	38.084	-47.49	152.96
ex90D	263	27.085	45.955	-47.73	220.11
ex180D	264	22.801	51.513	-61.45	243.10
ex1Y	196	26.022	78.998	-91.03	506.83
prcAs1	250	0.790	0.800	0.00	4.16
prcAs2	250	0.497	0.401	0.00	1.64
PSratio	257	2.759	9.690	0.02	88.17
exret_sd365	261	0.028	0.011	0.01	0.06

Table 1-1-D. Summary Statistics

Panel D Correlation between various employees' reviews.

	Overall Rating	Opportunity Rating	Recommend Rating	Outlook Rating	CEO Approval	Work-Life Rating	Compensation Rating
Overall Rating	1						
Opportunity Rating	0.76	1					
Recommend Rating	0.82	0.65	1				
Outlook Rating	0.54	0.44	0.49	1			
CEO Approval	0.51	0.42	0.55	0.23	1		
Work-Life Rating	0.71	0.62	0.61	0.31	0.41	1	
Compensation Rating	0.65	0.54	0.57	0.41	0.45	0.53	1

Figure 1. Figure presents industrial distribution of our sample compared to all IPOs that occurred between 2008 to 2016. Fama-French 38 Industry classification is used.

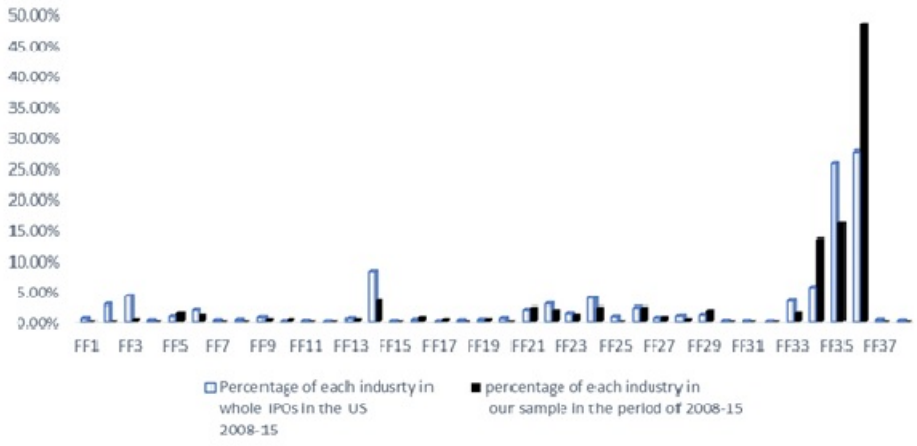

Table 1-2. Univariate Evidence:Post-IPO performance in sub-samples of low and high QualityRating

This table present Post-IPO performance in two sub-samples of lower and higher median of QualityRating.

Post IPO intervals	Below Median QualityRating	Above Median QualityRating	P Score Difference
One day excess return	17.1	26.78	0.01
One-week excess return	17.43	26.42	0.01
Two weeks excess return	16.95	26.68	0.01
Four weeks excess return	17.7	26.47	0.02

Table 1-3. Pre-IPO Employee opinions (each rating type) and Post-IPO excess return

This table presents results when we do not use our PCF variables (QualityRating and SatisfactionRating). The table presents the relation between pre-IPO employee opinions (for each rating) and post-IPO excess returns. Overall Rating in Panel A, Outlook rating in Panel B, CEO approval in Panel C, Recommend to Friend in Panel D, and opportunity rating in Panel E are used as our variables of concern. These employee rating variables are subsequently incorporated in our PCF variable (QualityRating). Dependent variables in each panel are one-day, one-week, four weeks, 60 days, 180 days, and one-year excess returns post-IPO in columns one to six. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

Panel A

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
Overall Rating	9.706***	12.18***	12.52***	13.79***	12.31**	17.98
	(3.674)	(3.017)	(3.179)	(4.224)	(6.117)	(10.93)
Constant	-61.24***	-60.16***	-44.58***	-56.23***	-12.2	20.85
	(13.95)	(12.14)	(12.90)	(16.77)	(24.34)	(37.87)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Industry Dummy	Y	Y	Y	Y	Y	Y
Observations	266	255	256	256	260	193
R-squared	0.173	0.231	0.212	0.22	0.168	0.232

Panel B

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
Outlook Rating	32.08***	36.56***	41.45***	36.09***	46.33***	58.89*
	(8.181)	(7.749)	(7.934)	(9.724)	(16.41)	(30.51)
Constant	-25.72***	-16.08***	1.14	-6.74	33.41***	85.49***
	(4.369)	(3.86)	(4.392)	(5.018)	(7.949)	(8.925)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Industry Dummy	Y	Y	Y	Y	Y	Y
Observations	266	255	256	256	260	193
R-squared	0.193	0.255	0.251	0.223	0.191	0.242

Panel C

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
CEO approval Rating	23.50***	20.66***	22.45***	20.10**	17.93	26.18
	(6.631)	(6.13)	(6.872)	(8.325)	(12.39)	(21.12)
Constant	-36.76***	-26.45***	-10.34*	-16.96**	22.91**	72.38***
	(5.382)	(5.165)	(5.846)	(6.708)	(10.33)	(10.35)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Industry Dummy	Y	Y	Y	Y	Y	Y
Observations	266	255	256	256	260	193
R-squared	0.189	0.218	0.206	0.203	0.16	0.224

Table 1-3. Continued

Panel D

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
RecommendToFriend	11.44*	17.15***	17.28***	20.17***	17.38*	24.86
	(6.394)	(4.901)	(5.168)	(6.705)	(9.903)	(17.12)
Constant	-31.70***	-23.75***	-7.047	-15.23**	24.63**	74.89***
	(5.316)	(4.876)	(5.464)	(6.127)	(9.494)	(9.645)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Industry Dummy	Y	Y	Y	Y	Y	Y
Observations	266	255	256	256	260	193
R-squared	0.159	0.214	0.196	0.211	0.163	0.226

Panel E

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
Opportunity Rating	13.61***	14.51***	15.21***	17.18***	16.44**	9.411
	(3.335)	(3.301)	(3.492)	(4.399)	(6.78)	(12.07)
Constant	-66.91***	-60.17***	-45.40***	-58.33***	-17.22	54.45
	(11.26)	(11.39)	(12.15)	(14.85)	(23.2)	(35.35)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Industry Dummy	Y	Y	Y	Y	Y	Y
Observations	266	255	256	256	260	193
R-squared	0.189	0.241	0.224	0.232	0.176	0.216

Table 1-4-A. Pre-IPO QualityRating and Post-IPO excess return

Table shows the relation between pre-IPO employee opinions about the Quality of the firm measured by our PCF variable (QualityRating), and post IPO excess returns based on different time intervals after the IPO day. The table provides results when we use one day (1st regression), one week (2nd regression), four weeks (3rd regression), sixty days (4th regression), 180 days (5th regression) and one year after the IPO excess returns (6th regression) as our dependent variables. In all regressions the dependent variable is IPO excess return in the appropriate period. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
QualityRating	7.797***	8.779***	9.314***	9.629***	9.392**	11.39
	(2.109)	(1.966)	(2.100)	(2.675)	(4.139)	(7.137)
Constant	-28.76***	-19.46***	-2.724	-10.12*	29.05***	80.88***
	(4.597)	(4.193)	(4.789)	(5.181)	(8.319)	(8.172)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Observations	266	255	256	256	260	193
R-squared	0.187	0.245	0.229	0.227	0.175	0.230

Table 1-4-B. Pre-IPO QualityRating and Post-IPO excess return (control variables added)

Table shows the relation between pre-IPO (QualityRating), and post IPO excess returns based on different time intervals after the IPO day when we add these control variables to the Table 1-4-A model: DRD, firm age, IPO size, PRICE(log),VC, PE, Nch2Wbef, D_offerUP, D_offerDOWN, D_topUnderwriter, D_large_size, D_small_size, and Reviews. The table provides results when we use one day (1st regression), one week (2nd regression), four weeks (3rd regression), sixty days (4th regression), 180 days (5th regression) and one year after the IPO excess returns (6th regression) as our dependent variables. In all regressions the dependent variable is IPO excess return in the appropriate period. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
QualityRating	3.366**	4.016**	5.252***	7.208***	7.901**	12.52*
	(1.554)	(1.635)	(1.475)	(2.005)	(2.754)	(6.702)
DRD	4.331	2.082	9.245	1.307	-7.724	-7.618
	(7.755)	(4.830)	(8.274)	(9.293)	(6.762)	(14.81)
Firm age	-0.00697	-1.199	-1.452	0.591	-1.832	-4.432
	(2.680)	(0.872)	(1.689)	(1.471)	(2.491)	(2.974)
IPO size	-5.269*	-4.639	-6.235**	-0.226	-3.073	0.744
	(2.598)	(3.344)	(2.731)	(2.638)	(5.107)	(10.62)
PRICE(log)	22.28***	14.58***	14.04***	6.923	1.431	0.858
	(4.463)	(4.717)	(4.390)	(5.119)	(9.739)	(26.80)
VC	22.70***	17.94***	14.15*	14.64*	33.58***	10.27
	(6.492)	(3.740)	(7.064)	(7.569)	(10.85)	(13.72)
PE	19.48***	10.13**	10.48	10.38	25.16***	17.43*
	(5.489)	(3.740)	(7.833)	(7.336)	(7.398)	(10.03)
Nch2Wbef	0.640	0.968***	0.849**	0.985*	2.096***	-0.826
	(0.386)	(0.306)	(0.356)	(0.521)	(0.572)	(1.549)
D_offerUP	8.839**	12.52***	11.42***	8.009*	5.535*	2.086
	(4.050)	(3.102)	(3.453)	(4.194)	(2.971)	(8.769)
D_offerDOWN	-7.444***	-7.494***	-5.704*	-2.753	4.142	9.067
	(2.079)	(2.152)	(3.063)	(3.261)	(4.780)	(14.04)
D_topUnderwriter	-1.090	-3.269	-0.313	-6.472	-0.994	0.162
	(9.308)	(6.307)	(4.771)	(7.919)	(8.897)	(31.98)
Reviews	9.673	2.108	2.759	-0.402	-18.94	-90.08**
	(12.70)	(8.533)	(6.802)	(9.143)	(17.52)	(37.95)
D_large_size	0.275	0.609	0.534	-4.171	-5.562	-31.41**
	(5.960)	(5.046)	(5.314)	(6.976)	(8.633)	(14.20)
D_small_size	0.811	-6.299	-11.28	-3.148	-3.975	-19.79
	(7.033)	(5.891)	(6.941)	(7.115)	(15.30)	(37.56)
Constant	-2.608	13.49	68.26	-36.19	51.59	161.8
	(38.97)	(55.00)	(55.00)	(51.69)	(111.7)	(216.4)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Observations	234	225	226	225	229	169
R-squared	0.314	0.376	0.337	0.260	0.217	0.300

Table 1-4-C. Pre-IPO QualityRating and Post-IPO excess return (additional control variables)

Table shows the relation between pre-IPO employee opinions about the Quality of the firm measured by our PCF variable (QualityRating), and post IPO excess returns based on different time intervals after the IPO day when we even add more control variables to the model used in Table 1-4-B. Here we add these control variables to Table 1-4-B: SP500, D_Price, D_tech, D_big4, D_young and D_old. In all regressions the dependent variable is IPO excess return in the appropriate period. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
QualityRating	3.857**	4.029**	5.610***	5.959**	9.325***	16.50**
	(1.522)	(1.562)	(1.542)	(2.484)	(2.954)	(6.952)
SP500	0.928***	0.888***	0.646***	0.886***	0.698**	-0.880
	(0.194)	(0.183)	(0.169)	(0.297)	(0.262)	(0.932)
DRD	4.408	2.687	9.396	1.798	-6.092	-9.831
	(8.363)	(5.149)	(8.589)	(9.420)	(8.590)	(10.81)
Firm age	-0.0729	-2.138	-0.151	2.234	4.009	-2.189
	(3.511)	(2.485)	(4.472)	(2.799)	(4.665)	(17.28)
IPO size	-5.106*	-4.688	-7.450**	-6.361	-3.651	-0.892
	(2.442)	(4.333)	(3.295)	(5.075)	(6.906)	(7.908)
PRICE (log)	22.57***	18.93*	22.10***	17.71	12.94	-2.962
	(7.619)	(10.70)	(7.177)	(10.61)	(9.862)	(21.46)
D_Price	-1.158	-6.589	-12.52	-15.64	-19.76	-1.158
	(6.573)	(9.616)	(7.298)	(12.75)	(11.69)	(21.51)
VC	24.97***	18.52***	15.17**	18.06**	39.51***	21.05
	(6.247)	(4.106)	(6.915)	(7.251)	(11.46)	(16.66)
PE	20.48***	11.43***	12.58*	15.24***	30.46***	21.01*
	(5.789)	(3.348)	(7.124)	(5.283)	(7.561)	(10.88)
Nch2Wbef	0.633	0.954***	0.789**	0.367	1.973***	-1.527
	(0.415)	(0.281)	(0.369)	(0.559)	(0.653)	(1.165)
D_offerUP	9.162**	12.47***	11.64***	11.50**	6.708**	6.969
	(4.261)	(3.392)	(3.646)	(5.032)	(2.513)	(9.306)
D_offerDOWN	-8.057***	-7.676***	-6.542*	-4.974	1.375	6.697
	(1.815)	(2.142)	(3.342)	(2.950)	(4.816)	(16.01)
D_tech	0.0679	1.309	-0.898	-2.628	-0.939	-15.11
	(4.032)	(2.650)	(3.220)	(4.584)	(11.22)	(17.91)
D_topUnderwriter	-0.641	-1.566	1.288	-3.287	1.423	-4.745
	(8.259)	(6.190)	(5.146)	(9.986)	(10.51)	(28.83)
D_big4	-1.205	-4.334	-1.966	-1.053	-8.924	19.12
	(7.794)	(5.523)	(6.251)	(9.356)	(17.47)	(23.58)
D_young	6.752	-1.396	3.663	14.10**	26.84**	38.61
	(8.055)	(6.410)	(7.886)	(6.220)	(11.12)	(34.74)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Observations	234	225	226	222	229	169
R-squared	0.320	0.380	0.346	0.275	0.238	0.336

Table 1-4-C Continued

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
D_old	7.306	1.689	-2.906	7.413	1.497	33.91
	(5.291)	(4.092)	(8.098)	(5.999)	(12.35)	(33.70)
D_large_size	-0.873	0.457	1.539	-0.560	-6.934	-39.84**
	(5.626)	(5.361)	(5.588)	(7.948)	(9.833)	(14.13)
D_small_size	0.843	-7.071	-14.19	-10.29	-7.898	-22.78
	(7.740)	(7.385)	(8.744)	(6.765)	(15.48)	(42.18)
Reviews	5.235	1.409	1.088	-14.61	-30.26	-115.9***
	(11.43)	(8.471)	(7.873)	(11.42)	(22.53)	(33.46)
Constant	26.45	45.83	103.0*	92.84	61.64	149.5
	(42.44)	(60.20)	(54.90)	(66.89)	(119.7)	(227.7)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Observations	234	225	226	222	229	169
R-squared	0.320	0.380	0.346	0.275	0.238	0.336

Table 1-5. Pre-IPO executive disclosure and employees' QualityRating and Post-IPO excess return

This table presents the relation between executives' and employees' disclosure before IPO, and IPO excess returns. The first two Panels (A, and B) replicate previous findings in financial text analysis literature related to the executive disclosure. The dependent variable is IPO excess return based on different time intervals after the IPO, and independent variables in Panel A are percentage of "uncertain words" in firms' official forms, and number of times firms resubmitted these forms to SEC as measures for executives' disclosure. In Panel B we add SP500, DRD, firm age, IPO size, PRICE, D_Price, VC, PE, Nch2Wbef, D_offerUP, D_offerDOWN, D_tech, D_topUnderwriter, D_big4, D_large_size, D_small_size, D_young, D_old, Reviews, and in Panel C we add QualityRating as our variable of concern to the same regressions of Panel B. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

Panel A

VARIABLES	1D	1W	4W	60D	180D	1Y
per424	22.61**	8.82	11.77	7.457	14.21	41.24**
	(9.381)	(7.875)	(7.815)	(6.468)	(12.86)	(17.66)
count424	0.375	0.795	0.958	1.082	2.190**	5.113***
	(0.599)	(0.9)	(0.822)	(0.856)	(-0.911)	(1.762)
perS1	-24.00*	-1.225	0.919	-0.745	-13.76	-45.1
	(12.63)	(4.148)	(6.14)	(8.329)	(17.38)	(32.24)
countS1	-0.295	0.408	0.546	1.121**	0.567	-1.723
	(0.847)	(0.334)	(0.412)	(0.476)	(1.483)	(3.894)
Constant	-30.23**	-33.38***	-23.50**	-26.27**	21.9	89.21**
	(13.78)	(8.195)	(8.53)	(10.99)	(23.52)	(38.19)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Observations	227	220	222	221	226	162
R-squared	0.177	0.181	0.188	0.194	0.223	0.386

Panel B

VARIABLES	1D	1W	4W	60D	180D	1Y
per424	21.30**	8.488	10.15	0.14	19.13	50.25**
	(9.72)	(11.43)	(11.2)	(9.824)	(12.37)	(22.55)
count424	-0.267	0.219	0.646	0.799***	2.092***	3.192
	(0.573)	(0.364)	(0.411)	(0.205)	(0.64)	(2.472)
perS1	-18.30***	3.051	5.423	1.712	-8.798	-24.71
	(6.144)	(4.879)	(5.517)	(9.254)	(14.48)	(19.06)
countS1	0.172	0.958***	0.992**	1.749**	1.139	0.908
	(0.642)	(0.296)	(0.422)	(0.698)	(0.83)	(1.072)
Constant	109.1	26.83	57.42	80.81	-26.42	-62.01
	(167.9)	(93.72)	(103.8)	(67.99)	(75.06)	(174.7)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Control variables	Y	Y	Y	Y	Y	Y
Observations	202	196	199	195	203	146
R-squared	0.359	0.422	0.37	0.305	0.291	0.455

Table 1-5-Continued

Panel C

VARIABLES	1D	1W	4W	60D	180D	1Y
QualityRating	4.706***	4.572**	5.834***	6.741**	11.13***	16.28*
	(1.536)	(1.878)	(1.717)	(2.384)	(2.815)	(8.380)
per424	18.41	6.494	8.908	-1.539	15.66	45.85**
	(10.93)	(11.69)	(10.86)	(9.547)	(12.79)	(21.00)
count424	-0.262	0.159	0.615	0.745***	2.095***	3.371
	(0.566)	(0.437)	(0.436)	(0.246)	(0.567)	(2.136)
perS1	-19.74**	1.849	5.748	2.255	-7.114	-20.08
	(8.001)	(5.672)	(4.803)	(8.126)	(14.80)	(17.13)
countS1	0.256	0.998***	1.002**	1.744**	1.258	1.033
	(0.594)	(0.333)	(0.407)	(0.688)	(0.880)	(1.010)
Constant	101.6	49.02	94.83	126.1*	40.16	23.01
	(112.2)	(101.6)	(100.0)	(60.29)	(90.09)	(217.6)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Control Variables	Y	Y	Y	Y	Y	Y
Observations	204	198	199	195	203	146
R-squared	0.368	0.410	0.387	0.322	0.315	0.476

Table 1-6. Pre-IPO QualityRating and "value" of each stock offered

This table presents the relation between employees' opinions about the quality of the firm and "value" of each stock offered, compared to its IPO offered price. The dependent variable is stock's value which is measured by three different variables. In the first regression the dependent variable is the ratio of offer price over total asset per share, called PrcAs1. In second regression the dependent variable is natural log of one plus the variable used in first regression, called PrcAs2, and in the third regression the dependent variable is ratio of Offer Price" over "firms" total sale per share at the IPO year", called PSratio. Results remain significant if we add excess returns after the IPO, D_offerUP, D_offerDOWN, RD, D_large_size, D_small_size, D_young, D_old, and PRICE, as control variables. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) prcAs1	(2) prcAs2	(3) PS ratio
QualityRating	0.165***	0.0806***	2.450**
	(0.0376)	(0.0189)	(1.150)
DRD	0.262	0.136	5.176
	(0.175)	(0.0853)	(3.916)
SP500	0.0259***	0.0126***	0.0613
	(0.00635)	(0.00320)	(0.160)
age	-0.0954	-0.0502	-0.208
	(0.0601)	(0.0292)	(0.227)
size	-0.142	-0.0723	-0.448
	(0.109)	(0.0567)	(0.699)
D_Price	0.451***	0.208***	-0.302
	(0.141)	(0.0641)	(1.544)
VC	0.606***	0.347***	-0.290
	(0.0939)	(0.0445)	(3.165)
Nch2Wbef	0.00655	0.00411	-0.301
	(0.0176)	(0.00776)	(0.280)
D_tech	0.269***	0.140***	-2.153***
	(0.0666)	(0.0323)	(0.561)
D_topUnderwriter	-0.120	-0.0603	1.996
	(0.145)	(0.0664)	(2.598)
D_big4	0.0167	-0.00239	-0.224
	(0.0622)	(0.0235)	(1.280)
Reviews	0.643	0.449	3.158
	(0.527)	(0.267)	(1.988)
Constant	2.686	1.460	8.888
	(2.276)	(1.173)	(15.18)
Year Dummy	Y	Y	Y
FF38 Dummy	Y	Y	Y
Observations	223	223	231
R-squared	0.445	0.506	0.241

Table 1-7. Pre-IPO QualityRating in different areas

This table shows when employees' opinions are more valuable. In all six regressions below the dependent variable is one day excess return. Our variables of concern are interaction of the dummy and employees' QualityRating. The dummy variable for PE, VC, Top10 underwriter, and Big4 audit firms is equal one in presence of these financial intermediaries. The dummy is equal one when the firm had negative net income at the last year before the IPO. The dummy also equal one when the firm had reviews more than mean plus standard deviation of sample before the IPO. Regressions include control variables: D_tech, Firm Age, IPO Size, PRICE, VC, PE, Nch2Wbef, D_offerUP, D_offerDOWN, D_topUnderwriter, D_large_size, D_small_size, and Reviews. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) VC	(2) Big4	(3) TOP10	(4) PE	(5) -NI	(6) High Review (raw number)	(7) High Review (adj. for employees)
Interaction: $QualityRating \times dummy = 0$	0.729	-2.027	-2.692	5.167*	2.768	3.331**	3.854**
	(4.537)	(10.98)	(8.648)	(2.520)	(2.325)	(1.546)	(1.809)
Interaction: $QualityRating \times dummy = 1$	5.726**	3.979**	4.516***	0.448	3.951*	2.554	-2.397
	(2.651)	(1.593)	(1.364)	(3.534)	(1.988)	(9.085)	(3.714)
Constant	16.49	7.268	12.77	22.14	9.525	-11.07	3.803
	(43.84)	(38.51)	(39.07)	(44.26)	(24.00)	(25.72)	(22.28)
Year Dummy	Y	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y	Y
Control Variables	Y	Y	Y	Y	Y	Y	Y
Observations	234	234	234	234	234	234	234
R-squared	0.317	0.315	0.317	0.317	0.314	0.317	0.316

Table 1-8-A. Pre-IPO QualityRating and Post-IPO excess return (when initial day performance dropped)

The table shows the relation between pre-IPO employee opinions about the Quality of the firm measured by our PCF variable (QualityRating), and post IPO excess returns when we drop initial day excess returns. The dependent variable is firms' excess return starting from the day after the initial day, and our variable of concern is textitQualityRating. Results are qualitatively unaffected when covariates D_large_size, D_small_size. DRD, D_Price, D_old, D_young are added to the regression. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
QualityRating	2.636**	3.093***	4.130***	5.529***	5.723***	9.637*
	(1.172)	(0.709)	(1.052)	(1.279)	(1.404)	(4.976)
SP500	0.181*	-0.00942	-0.328**	0.345*	0.294*	-2.210***
	(0.0984)	(0.0807)	(0.117)	(0.167)	(0.169)	(0.715)
Firm age	-0.940*	-1.112**	-0.259	1.256	0.177	0.659
	(0.511)	(0.520)	(0.719)	(1.092)	(1.570)	(2.524)
IPO size	-4.362**	-3.305*	-3.886***	-1.251	-2.909	-2.625
	(1.522)	(1.645)	(1.299)	(1.266)	(1.834)	(3.127)
PRICE(log)	13.93***	13.96***	13.10***	11.91***	4.836	12.15
	(3.008)	(3.577)	(3.283)	(3.336)	(6.972)	(15.59)
VC	4.650	4.015*	0.943	2.759	20.65*	1.009
	(2.684)	(2.296)	(4.852)	(5.440)	(10.11)	(11.04)
PE	1.039	-0.0352	-1.178	-0.0935	15.59***	12.18***
	(3.124)	(2.863)	(5.369)	(4.581)	(4.268)	(3.980)
Nch2Wbef	0.757**	0.584**	0.602*	0.957*	1.857**	-0.792
	(0.304)	(0.271)	(0.336)	(0.498)	(0.671)	(1.271)
D_offerUP	-4.676*	-4.778**	-6.489**	-11.22***	-11.98***	-11.16
	(2.437)	(1.669)	(2.696)	(3.784)	(2.447)	(11.59)
D_offerDOWN	-1.938	0.689	0.909	5.067	8.800**	14.95
	(1.774)	(2.262)	(3.401)	(3.731)	(3.371)	(11.18)
D_tech	-1.988*	-1.234	-3.259*	-3.180	-6.049	-1.756
	(1.054)	(1.474)	(1.810)	(2.407)	(6.986)	(9.362)
D_topUnderwriter	-1.337	0.560	3.257	-3.675	1.492	-4.904
	(1.606)	(2.741)	(3.969)	(3.748)	(10.66)	(12.55)
D_big4	-1.946	-2.710	-3.302	-4.595	-12.69	4.604
	(5.725)	(5.312)	(8.240)	(11.13)	(17.38)	(24.41)
Reviews	-5.847	-3.121	-7.979	-5.285	-21.93	-67.45***
	(10.31)	(10.19)	(7.132)	(10.22)	(17.38)	(16.11)
Constant	50.77	26.15	51.50*	7.176	62.07**	62.58
	(33.59)	(34.89)	(27.69)	(21.88)	(28.51)	(42.91)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Observations	219	219	219	217	218	161
R-squared	0.197	0.196	0.130	0.156	0.193	0.307

Table 1-8-B. Pre-IPO QualityRating and Post-IPO excess return (first week (two weeks) performance dropped)

The table shows the relation between pre-IPO employee opinions about the Quality of the firm measured by our PCF variable (QualityRating), and post IPO excess returns when one week (Panel B1), or two weeks excess return (Panel B2) are dropped. In panel B1, the dependent variable is firms' excess return starting one week after the IPO day, while the dependent variable in panel B2 is firms' excess return started two weeks after IPO day. Our variable of concern is QualityRating. Results are qualitatively unaffected when covariates D_large_size, D_small_size. DRD, D_Price, D_old, D_young are added to the regression. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

	Panel B1			Panel B2		
VARIABLES	(1) 60D	(2) 180D	(3) 1Y	(1) 60D	(2) 180D	(3) 1Y
QualityRating	1.818*	2.720**	4.602	2.397***	3.283***	6.839
	(0.987)	(1.034)	(4.782)	(0.792)	(1.103)	(5.181)
SP500	0.328***	0.220*	-2.147***	0.429***	0.331**	-1.927***
	(0.0529)	(0.108)	(0.589)	(0.0627)	(0.116)	(0.587)
Firm age	1.735**	0.314	-0.143	1.614**	0.170	-0.911
	(0.716)	(1.243)	(2.319)	(0.665)	(1.155)	(2.456)
IPO size	2.001	-0.157	-2.066	2.135	-0.133	-2.955
	(1.291)	(2.585)	(4.836)	(1.253)	(2.533)	(5.414)
PRICE(log)	-6.887	-8.931	2.378	-6.081	-7.821	6.703
	(5.036)	(6.504)	(13.12)	(5.246)	(7.613)	(12.90)
VC	-1.962	11.35	-4.929	-2.787	13.45	-3.106
	(3.693)	(8.174)	(10.98)	(3.486)	(8.457)	(8.971)
PE	-0.289	11.94**	4.706	-0.511	14.38**	7.317
	(2.838)	(5.057)	(9.048)	(2.556)	(5.049)	(7.742)
Nch2Wbef	0.323	1.377**	-0.653	0.0658	1.077	-1.465
	(0.301)	(0.605)	(1.054)	(0.398)	(0.646)	(1.077)
D_offerUP	-2.615	-4.257**	-3.940	-4.083***	-5.592**	-6.691
	(1.848)	(1.804)	(10.99)	(1.384)	(2.433)	(9.743)
D_offerDOWN	4.267*	8.431	20.17*	2.726	6.984	19.00*
	(2.284)	(5.327)	(9.682)	(2.038)	(6.160)	(9.130)
D_tech	-2.795	-2.624	-1.769	-1.318	-1.638	-0.971
	(1.688)	(5.170)	(7.433)	(1.653)	(5.459)	(7.226)
D_topUnderwriter	-0.825	2.361	0.894	-2.059	1.648	2.481
	(2.935)	(8.043)	(15.46)	(2.575)	(8.734)	(15.67)
D_big4	-1.240	-7.324	3.210	-1.891	-8.896	6.213
	(3.724)	(12.29)	(26.16)	(3.735)	(11.40)	(27.26)
Reviews	-2.489	-17.14	-73.87***	-4.017	-17.71	-68.23***
	(4.413)	(12.73)	(16.65)	(4.274)	(10.79)	(18.83)
Constant	-5.293	35.33	72.01	-10.88	36.73	83.33
	(17.58)	(49.45)	(97.02)	(15.99)	(49.04)	(94.33)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Observations	223	224	167	223	225	168
R-squared	0.213	0.240	0.315	0.229	0.251	0.306

Table 1-9. Pre-IPO employee uncertainty and Post-IPO stock volatility

Table shows relation between pre-IPO standard-deviation in employee opinions and post-IPO stock volatility. The dependent variable is volatility of daily excess return over 365 days after the IPO measured by the standard deviation of daily excess return, where excess return is daily holding period return minus value weighted market return. In the regression model (1) the only control variables are year and industry fixed effects. In regression model (2) we control for: SP500, age, size, PRICE, D_Price, VC, PE, Nch2Wbef, D_offerUP, D_offerDOWN, D_tech, D_topUnderwriter, D_big4, D_young, D_old, D_High_count, D_large_size, D_small_size Reviews, DRD are included.In regression model (3) PerS1, CountS1 are added to the control variables of model (2), while model (4) adds Per424, Count424 to the control variables in model (2). Regression (5) includes six months excess return, and LHratio to model (3) controls. In regression (6) we add six months excess return, and LHratio to model (4). All control variables are included in model (7). All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SD_QualityRating	0.00810**	0.00693***	0.00909***	0.00682**	0.00995***	0.00947***	0.00995***
	(0.00364)	(0.00212)	(0.00199)	(0.00259)	(0.00196)	(0.00199)	(0.00206)
perS1			0.00144		0.00116		0.000140
			(0.00261)		(0.00238)		(0.00251)
countS1			0.000246**		2.55e-05		-2.56e-05
			(9.90e-05)		(0.000111)		(0.000140)
per424				3.26e-05		-0.000628	0.00110
				(0.00193)		(0.00187)	(0.00224)
count424				-1.41e-05		-7.20e-05	-0.000228
				(0.000101)		(7.37e-05)	(0.000164)
6m Excess Return					1.12e-05*	1.13e-05	1.06e-05
					(5.94e-06)	(8.69e-06)	(6.47e-06)
LHratio					-0.0386*	-0.0398**	-0.0424**
					(0.0194)	(0.0144)	(0.0166)
Constant	0.0361***	0.0192	0.0174	0.0271*	0.0482*	0.0549***	0.0620**
	(0.00185)	(0.0130)	(0.0128)	(0.0156)	(0.0252)	(0.0179)	(0.0229)
Year Dummy	Y	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y	Y
Control Variables	Y	Y	Y	Y	Y	Y	Y
Observations	244	218	207	208	205	204	196
R-squared	0.287	0.569	0.597	0.579	0.618	0.616	0.637

Table 1-10. Pre-IPO QualityRating and IPO Offer Size

Table shows relation between Pre-IPO employees' opinions about the quality of the firm and IPO offer size. Here, the dependent variable is IPO offer size. Regression models (2) & (3) add more control variables to model (1) as shown in the table. Regression (4) includes four-week excess return as an additional control variable (results are similar for excess returns over different time intervals from one day to one year). All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)
QualityRating	0.0695*	0.0594**	0.0511*	0.0654***
	(0.0380)	(0.0210)	(0.0271)	(0.0211)
SP500	-0.0170***	-0.0191***	-0.0186***	-0.0174***
	(0.00563)	(0.00403)	(0.00494)	(0.00514)
age	-0.0349	-0.0448	-0.209	-0.206
	(0.0718)	(0.0811)	(0.129)	(0.145)
D_Price	0.864***	0.608***	0.543***	0.537***
	(0.145)	(0.0483)	(0.0805)	(0.0741)
VC	-0.186	-0.231	-0.168	-0.110
	(0.127)	(0.136)	(0.197)	(0.231)
PE	0.210	0.213*	0.251*	0.317**
	(0.144)	(0.104)	(0.123)	(0.139)
DRD	-0.336*	-0.465***	-0.474***	-0.473***
	(0.180)	(0.157)	(0.153)	(0.161)
Nch2Wbef	-0.0337	-0.0395*	-0.0438*	-0.0458*
	(0.0243)	(0.0226)	(0.0221)	(0.0245)
D_tech	-0.365***	-0.342***	-0.311***	-0.331***
	(0.0676)	(0.0743)	(0.0835)	(0.0850)
Reviews		-1.016***	-1.174***	-1.094***
		(0.308)	(0.249)	(0.290)
D_topUnderwriter		0.624***	0.669***	0.654***
		(0.131)	(0.104)	(0.0985)
D_big4		0.548***	0.551***	0.552***
		(0.0939)	(0.115)	(0.141)
D_old			0.528***	0.457**
			(0.182)	(0.205)
D_young			-0.194	-0.197
			(0.244)	(0.278)
D_offerUP			-0.0707	-0.0610
			(0.0979)	(0.0915)
D_offerDOWN			-0.273**	-0.325***
			(0.120)	(0.108)
4WeeksExcessReturn				-0.00102
				(0.000657)
Constant	18.70***	18.15***	18.48***	18.51***
	(0.178)	(0.512)	(0.643)	(0.786)
Year Dummy	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y
Observations	249	234	234	226
R-squared	0.340	0.449	0.470	0.464

Table 1-11-A. Different measures for Pre-IPO employee opinions and Post-IPO excess return

This table shows relation between various measures of pre-IPO opinions and post-IPO excess returns. Here, the dependent variable is one day excess return. In regression model (1), the various employee ratings are incorporated into a single PCF variable: AggregateRating. Regression (2) includes QualityRating along with Compensation Rating. Regression model (3) includes Work-Life Balance along with QualityRating, while model (4) includes both Compensation Rating and Work-Life balance along with QualityRating. Regression (5) uses QualityRating along with Unadjusted SatisfactionRating, where Unadjusted SatisfactionRating is the PCF variable obtained from Work-Life balance and Compensation Rating. For model (6), Adjusted SatisfactionRating is obtained from Unadjusted SatisfactionRating excluding the predicted part of SatisfactionRating using QualityRating (orthogonalized). All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
AggregateRating	2.455*					
	(1.357)					
QualityRaing		10.10***	9.167***	13.66***	13.60***	4.237***
		(2.718)	(2.340)	(2.529)	(2.523)	(1.198)
CompRating		-14.01**		-11.84*		
		(5.599)		(6.134)		
WorklifeRating			-12.66**	-10.85*		
			(4.951)	(5.657)		
SatisfationRating-UNADJUSTED					-11.25***	
					(2.687)	
SatisfationRating-ADJUSTED						-11.25***
						(2.687)
Constant	-1.414	33.09	38.30	56.66	-15.47	-15.47
	(44.80)	(52.00)	(41.01)	(47.71)	(38.92)	(38.92)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Control variables	Y	Y	Y	Y	Y	Y
Observations	234	234	234	234	234	234
R-squared	0.297	0.317	0.318	0.328	0.328	0.328

Table 1-11-B. pre-IPO Unadjusted SatisfactionRating and Post-IPO excess return

Table shows relation between pre-IPO employees' Unadjusted SatisfactionRating and post IPO excess returns based on different time intervals after the IPO day. Table provides results for different time intervals excess return: One day (1st regression), one week (2nd regression), four weeks (3rd regression), sixty days (4th regression), 180 days (5th regression) and one year excess returns (6th regression). While we rely on Adjusted SatisfactionRating in our analysis, here we provide positive effect of Unadjusted SatisfactionRating, which shows employees' satisfaction is positively related to the firm performance when we do not control for the firm quality. Here, the dependent variable is IPO excess return in the appropriate period. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
SatisfactionRating	3.190	4.822**	4.554**	4.790*	3.657	8.487
(Unadjusted)	(2.260)	(1.925)	(1.949)	(2.572)	(3.551)	(6.777)
Constant	-28.78***	-19.40***	-2.669	-10.13*	28.85***	80.82***
	(4.901)	(4.531)	(5.148)	(5.504)	(8.560)	(8.215)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Observations	266	255	256	256	260	193
R-squared	0.152	0.195	0.176	0.190	0.153	0.223

Table 1-11-C. Pre-IPO Adjusted SatisfactionRating and Post-IPO excess return

The table shows relation between pre-IPO employees' Adjusted SatisfactionRating and post IPO excess returns based on different time intervals after the IPO day. The table provides results for One day (1st regression), one week (2nd regression), four weeks (3rd regression), sixty days (4th regression), 180 days (5th regression) and one year excess returns (6th regression). In all regressions the dependent variable is IPO excess return in the appropriate period. Here, we show that while there is positive relation between Unadjusted SatisfactionRating and firm excess return, results would be negatively significant when we control for the firm quality. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
SatisfactionRating	-8.791**	-5.964*	-7.986**	-7.984*	-11.02*	-0.624
(Adjusted)	(4.302)	(3.356)	(3.660)	(4.446)	(6.509)	(12.16)
Constant	-28.77***	-19.32***	-2.551	-10.05*	29.08***	81.13***
	(4.815)	(4.557)	(5.099)	(5.636)	(8.650)	(8.258)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Observations	266	255	256	256	260	193
R-squared	0.163	0.182	0.176	0.189	0.161	0.213

Table 1-12-A. Pre-IPO QualityRating & SatisfactionRating and Post-IPO excess return

This panel shows the relation between employees' opinions about the Quality of the firm, and their satisfaction in the firm before the IPO (QualityRating, and SatisfactionRating), and IPO excess returns based on different time intervals after the IPO day. In all regressions the dependent variable is IPO excess return in the appropriate period; One day (1^{st} regression), one week (2^{nd} regression), four weeks (3^{rd} regression), sixty days (4^{th} regression), 180 days (5^{th} regression) and one year after the IPO day excess returns (6^{th} regression). All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively. (The same as Table 1-4-A when we add Adjusted SatisfactionRating)

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
QualityRating	8.191***	8.968***	9.567***	9.882***	9.839**	11.47
	(2.062)	(1.942)	(2.067)	(2.640)	(4.101)	(7.146)
SatisfactionRating	-9.766**	-6.694**	-8.775**	-8.796**	-12.07*	-2.002
	(4.143)	(3.144)	(3.432)	(4.241)	(6.410)	(12.04)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Observations	266	255	256	256	260	193
R-squared	0.209	0.260	0.251	0.242	0.190	0.230

Table 1-12-B. Pre-IPO QualityRating & SatisfactionRating Vs Post-IPO excess return
(Control variables added)

This table shows the relation between employees' opinions about the quality of the firm and their satisfaction in the firm before the IPO, and IPO excess returns based on different time intervals after the IPO day while we add more control variables to the regressions. In all regressions the dependent variable is IPO excess return in the appropriate period. The table provides results for One day (1st regression), one week (2nd regression), four weeks (3rd regression), sixty days (4th regression), 180 days (5th regression) and one year after the IPO day excess returns (6th regression). Compared to Table 1-12-A (above): we add control variables: DRD, Age, Size, PRICE, VC, PE, Nch2Wbef, D_offerUP, D_offerDOWN, D_topUnderwriter, Reviews, D_large_size, D_small_size. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively. (The same as Table 1-4-B when we add SatisfactionRating)

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
QualityRating	3.879**	4.225**	5.554***	7.530***	8.276**	12.54*
	(1.466)	(1.704)	(1.647)	(2.149)	(2.996)	(6.888)
SatisfactionRating	-12.14***	-8.852***	-10.68**	-10.20	-11.95	-0.796
	(3.502)	(3.028)	(4.705)	(7.327)	(9.395)	(14.28)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Control Variables	Y	Y	Y	Y	Y	Y
Observations	234	225	226	225	229	169
R-squared	0.346	0.398	0.367	0.277	0.231	0.300

Table 1-12-C. Pre-IPO QualityRating & SatisfactionRating and Post-IPO excess return
(Additional control variables added)

This table shows the relation between employees' opinions about the quality of the firm and their satisfaction in the firm before the IPO, and IPO excess returns based on different time intervals after the IPO day while we add even more control variables to the regression (compared to Panel B, above). In all regressions the dependent variable is IPO excess return in the appropriate period. Control variables used in this table are: SP500, DRD, Age, Size, PRICE, D_Price, VC, PE, Nch2Wbef, D_offerUP, D_offerDOWN, Reviews, D_tech, D_topUnderwriter, D_big4, D_young, D_old, D_large_size, D_small_size. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively. (The same as Table 1-4-C when we add SatisfactionRating)

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
QualityRating	4.243***	4.152**	5.786***	6.142**	9.573***	16.55**
	(1.421)	(1.615)	(1.655)	(2.521)	(3.188)	(7.148)
SatisfactionRating	-12.76***	-9.043***	-10.90**	-11.02	-12.66	-4.645
	(3.384)	(3.020)	(4.849)	(6.449)	(9.724)	(16.94)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Control Variables	Y	Y	Y	Y	Y	Y
Observations	234	225	226	222	229	169
R-squared	0.353	0.402	0.375	0.298	0.252	0.337

Table 1-13-A. Change in employee opinions after a Strong/Poor IPO initial day performance

This table shows dramatic changes in employees' opinions (Employee opinions six months after the IPO, minus employee opinions six months before the IPO) respect to IPO day excess return. Here SatisfactionGAP is calculated using adjusted SatisfactionRating.

	QualityGAP	Satisfaction GAP	GAP in Standard deviation of QualityRating	GAP in Standard deviation of SatisfactionRating
Positive initial day excess return	0.14	-0.1	0.1	0.06
Negative initial day excess return	-0.1	-0.02	0.14	0.47
T test	1.89	0.92	0.25	2.21

Figure 2. Table 1-13-A findings are presented graphically

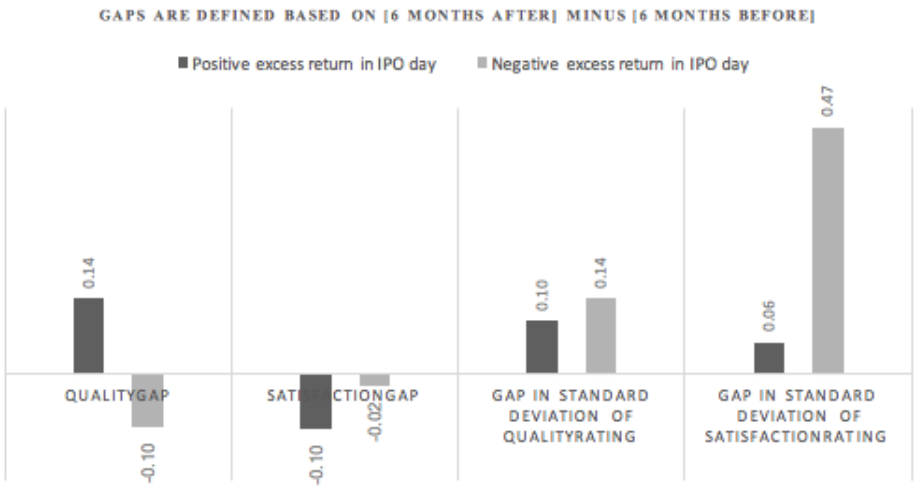

Table 1-13-B. Change in employee opinions due to IPO withdrawal

This table shows the "effect of IPO withdrawal in employees' opinions". Here we compare employees' reviews from withdrawal date till a year after that, and employees' reviews from a year before the withdrawal date until the withdrawal date. Results would be the same if we compare six months interval instead of a year.

	Mean (before)	Mean (after)	Obs.	T-test
QualityRating	0.126	0.49	30	1.11
SatisfactionRating	0.01	0.21	30	0.87

Table 1-13-C. Change in employee opinions after the IPO date (compared to before the IPO)

Table presents "changes in employees' opinions" six months after the IPO compared to the six months before the IPO. Gaps are defined based on after-opinions minus before-opinions. The sample contains 175 firms.

	Mean	T-test	Observation
GAP in Mean of QualityRating	-0.04	0.56	175
GAP in Mean of SatisfactionRating	-0.03	0.72	175
GAP in St deviation of QualityRating	-0.04	0.54	175
GAP in St deviation of SatisfactionRating	0.03	0.34	175

Table 1-13-D. Change in employee opinions over longer time interval

The table presents changes in employees' opinions over time. Here, "employees' opinions in the last six months before the IPO" is compared with "employees' opinions before that date back to the firm's foundation date, or Glassdoor foundation, whichever happened first".

	Mean	T-test	Observation
GAP in Mean of QualityRating	0.13	1.99	185
GAP in Mean of SatisfactionRating	0	0.01	185
GAP in St deviation of QualityRating	-0.01	0.13	185
GAP in St deviation of SatisfactionRating	-0.11	1.34	185

Appendix B

Table B-1. WLS regressions: Pre-IPO opinions Vs excess returns

The table presents the relation between employees' pre-IPO opinions and firm excess return after IPO controlling for the number of reviews and number of employees. Here, instead of OLS, we estimate a WLS regression, where weight is the ratio of number of reviews over number of employees (Variable Reviews). The dependent variable is firms' excess returns after the IPO based on different intervals e.g., 1D is 1-day, 1W is 1-week and 1Y is 1-year. Control variables are: SP500, DRD, age, size, RPCIE, D_Price, VC, PE, Nch2Wbef, D_offerUP, D_offerDOWN, D_topUnderwriter, D_big4, D_young, D_old, D_large_size, D_small_size, D_tech. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
QualityRating	5.797**	7.528***	5.984*	6.488**	15.24***	11.25***
	(2.392)	(1.818)	(2.884)	(3.013)	(3.296)	(3.473)
SatisfactionRating	-5.774	-8.456*	-11.71**	-13.59**	-15.32*	-4.185
	(3.574)	(4.099)	(5.539)	(6.239)	(7.521)	(9.862)
Constant	97.39**	84.78*	170.0**	268.4***	-3.735	-150.2
	(38.71)	(41.00)	(70.99)	(92.89)	(107.7)	(137.2)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Control Variables	Y	Y	Y	Y	Y	Y
WLS regression	Y	Y	Y	Y	Y	Y
Observations	234	225	226	226	229	169
R-squared	0.477	0.470	0.429	0.368	0.336	0.443

Table B-2. Pre-IPO employee opinions vs. excess return (Robustness)

The table replicates Table 1-5-C under additional restrictions. We test (compare) "employee opinions" versus "executive disclosure". Changes compared to Table 1-5-C are: 1) we add SatisfactionRating to the model. 2) Since executives must submit their S1 and 424 forms about 3 months before the IPO, we restricted our variables in the same fashion and drop reviews submitted during the last 90 days before the IPO. As a result, we only use reviews submitted at least 91 days before the IPO. This table shows that our findings are not driven by employee opinions provided in the months leading up to the IPO (when the firm's decision to go public is likely to have been known to employees). The dependent variable is IPO excess return in different time intervals e.g., 1D is 1-day, 1W is 1-week and 1Y is 1-year. Control variables included (but not reported) are: SP500, DRD, age, size, PRCIE, D_Price, VC, PE, Nch2Wbef, D_offerUP, D_offerDOWN, D_young, D_old, D_large_size, D_small_size. D_topUnderwriter, D_big4, Reviews. Per424, PerS1, Count424, CountS1. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
QualityRating	3.964**	3.493	4.655**	7.127***	9.380***	12.72
	(1.854)	(2.347)	(2.198)	(1.830)	(3.184)	(8.398)
SatisfactionRating	-12.50***	-6.481**	-9.058**	-4.901	-5.807	-10.08
	(2.938)	(2.344)	(3.570)	(7.122)	(11.56)	(13.85)
Constant	73.99	6.897	50.53	64.60	-49.00	-84.22
	(118.8)	(110.9)	(103.9)	(78.41)	(83.58)	(231.9)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Control Variables	Y	Y	Y	Y	Y	Y
Observations	198	192	193	194	197	141
R-squared	0.397	0.421	0.407	0.283	0.328	0.498

Table B-3. Pre-IPO employee opinions and excess returns (Robustness)
(addition of PrcAs2)

This table Presents relation between employees' opinions about the quality of the firm before the IPO, and IPO excess returns based on different time intervals after the IPO day while we have these control variables: SP500, DRD, age, Size, PRICE, D_Price, VC, PE, Nch2Wbef, D_offerUP, D_offerDOWN, D_tech, D_topUnderwriter, D_big4, D_young, D_old, D_small_size, D_large_size, Reviews. In addition to Table 1-4-C controls we add PrcAs2 (explained in section 1.4.2) as one more control variable. Panel A provides results when we only test QualityRating, while in Panel B we add Adjusted SatisfactionRating as well. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

Panel A

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
QualityRating	3.819*	4.203**	5.946***	7.815***	9.535***	16.06**
	(1.873)	(1.676)	(1.637)	(2.550)	(3.017)	(7.274)
prcAs2	7.947	3.350	2.841	-7.780	8.784	9.117
	(9.056)	(4.871)	(7.703)	(8.571)	(8.011)	(23.31)
Constant	28.11	49.48	109.8*	139.7***	100.9	165.2
	(50.91)	(60.35)	(60.74)	(45.04)	(136.7)	(247.9)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Control Variables	Y	Y	Y	Y	Y	Y
Observations	223	214	215	211	218	163
R-squared	0.328	0.385	0.350	0.292	0.242	0.331

Panel B

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
QualityRating	4.518**	4.503**	6.366***	8.265***	10.03***	16.23*
	(1.573)	(1.679)	(1.771)	(2.525)	(3.323)	(7.715)
SatisfactionRating	-13.23***	-9.321**	-11.48**	-11.89*	-12.81	-4.829
	(3.524)	(3.434)	(4.725)	(5.682)	(8.951)	(19.13)
prcAs2	7.476	3.508	2.795	-7.888	8.823	8.698
	(9.025)	(5.117)	(7.609)	(8.929)	(7.917)	(23.98)
Reviews	6.741	1.859	3.111	-13.28	-35.52**	-127.2***
	(11.43)	(9.442)	(6.552)	(9.988)	(13.71)	(39.17)
Constant	-4.496	20.66	76.32*	108.7**	64.55	147.8
	(38.69)	(46.88)	(40.26)	(47.41)	(139.9)	(275.5)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Control Variables	Y	Y	Y	Y	Y	Y
Observations	223	214	215	211	218	163
R-squared	0.363	0.408	0.382	0.318	0.257	0.331

Table B-4. Pre-IPO employee opinions and excess return (Robustness)
(Longer dropped initial period: first month or first two months))

Table presents relation between pre-IPO employees' opinions and firm's excess return after the IPO with longer initial period returns dropped compared to Table 1-8-A and 1-8-B. In column 1 (column 2), we drop first four weeks (first two months) after the IPO. The dependent variable is firms' excess return starting 4 weeks (two months) after the IPO day. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) 180D excess return while first 4 weeks dropped	(2) 180D excess return While first 2 months dropped
QualityRating	3.237**	2.450*
	(1.347)	(1.274)
SatisfactionRating	-1.892	-2.024
	(4.649)	(3.133)
SP500	0.375***	-0.213**
	(0.103)	(0.0990)
Firm age	4.362	3.862
	(3.060)	(2.286)
IPO size	1.322	-0.952
	(4.435)	(4.064)
PRICE (log)	-1.959	5.466
	(5.261)	(5.636)
D_Price	-6.178	-9.027
	(5.689)	(5.524)
VC	19.21***	16.70**
	(5.954)	(6.735)
PE	16.97**	16.62**
	(7.167)	(6.538)
Nch2Wbef	1.047*	0.828
	(0.524)	(0.528)
D_offerUP	-3.264*	-1.023
	(1.593)	(1.672)
D_offerDOWN	6.701	3.954
	(6.862)	(6.565)
D_tech	1.630	2.360
	(4.207)	(3.838)
D_topUnderwriter	-0.514	-0.372
	(4.372)	(7.017)
D_big4	-5.880	-7.079
	(9.316)	(8.502)
D_young	20.66**	16.91**
	(9.049)	(7.778)
Year Dummy	Y	Y
FF38 Dummy	Y	Y
Observations	225	224
R-squared	0.240	0.221

Table B-4 Continued

VARIABLES	(1) 180D excess return while first 4 weeks dropped	(2) 180D excess return While first 2 months dropped
D_old	2.294	-3.868
	(5.622)	(6.762)
D_large_size	-3.242	-2.296
	(6.370)	(6.596)
D_small_size	6.716	-0.628
	(6.745)	(8.183)
Reviews	-19.52	-17.80
	(12.60)	(13.79)
Constant	-33.40	-5.180
	(88.58)	(77.16)
Year Dummy	Y	Y
FF38 Dummy	Y	Y
Observations	225	224
R-squared	0.240	0.221

Table B-5. Employee opinions & executive disclosure (Robustness)
(S1 form only)

The table presents results for executives' disclosure, adjusting for correlation between S1 and 424 variables, which could affect inference from Table 1-5. We show results only based on S1 form (form 424 variables are excluded). All regressions below include industry and year fixed effects along with our usual control variables in all panels. In panel A we show results only based on S1, plus usual controls. In panel B we add QualityRating, and in panel C we add both QualityRating and SatisfactionRating. In all regressions standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

Panel A

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
perS1	-10.66*	5.300	8.743	4.060	5.362	2.324
	(5.192)	(4.028)	(5.593)	(8.241)	(18.47)	(37.89)
countS1	0.268	1.326***	1.580**	2.195**	2.450*	4.042
	(0.796)	(0.370)	(0.729)	(0.866)	(1.231)	(3.293)
Constant	86.90	24.57	56.82	35.26	-50.80	-127.6
	(113.1)	(61.83)	(81.78)	(53.53)	(97.14)	(167.2)
Observations	211	205	208	204	212	153
R-squared	0.341	0.424	0.364	0.306	0.248	0.337

Panel B

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
perS1	-11.14*	4.389	7.787	3.033	4.453	4.999
	(5.457)	(3.373)	(5.304)	(7.059)	(17.32)	(36.04)
countS1	0.290	1.263***	1.515**	2.114**	2.506**	4.132
	(0.748)	(0.346)	(0.673)	(0.816)	(1.178)	(3.113)
QualityRating	6.364**	5.774**	6.519***	7.151***	11.34***	17.22**
	(2.534)	(2.197)	(1.699)	(2.279)	(3.185)	(8.061)
Constant	126.7	64.66	100.9	84.93	21.92	-26.76
	(113.9)	(71.19)	(87.00)	(59.53)	(120.2)	(227.4)
Observations	211	205	208	204	212	153
R-squared	0.361	0.447	0.387	0.327	0.274	0.363

Panel C

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
perS1	-12.44**	3.737	6.500	1.625	3.451	4.342
	(5.563)	(3.705)	(6.277)	(6.350)	(15.49)	(36.37)
countS1	0.175	1.170***	1.365*	2.010**	2.420**	4.098
	(0.736)	(0.368)	(0.658)	(0.746)	(1.078)	(3.061)
QualityRating	6.573**	5.806**	6.618***	7.226***	11.43***	17.23**
	(2.620)	(2.294)	(1.817)	(2.362)	(3.330)	(8.176)
SatisfactionRating	-11.44***	-5.961*	-8.531**	-8.178	-8.597	-2.988
	(3.037)	(2.952)	(3.878)	(5.264)	(10.10)	(21.78)
Constant	103.7	48.27	80.02	67.69	2.027	-35.64
	(100.3)	(65.11)	(77.75)	(69.92)	(140.9)	(256.8)
Observations	211	205	208	204	212	153
R-squared	0.390	0.458	0.403	0.339	0.281	0.363

Table B-6. Employee opinions & executive disclosure (Robustness)
(form 424 only)

The table presents results for executives' disclosure, adjusting for correlation between S1 and 424 variables, which could affect inference from Table 1-5. We show results only based on form 424 (form S1 variables are excluded). All regressions below include industry and year fixed effects along with our usual control variables in all panels. In panel A we show results only based on 424 form, plus usual controls. In panel B we add QualityRating, and in panel C we add both QualityRating and SatisfactionRating. In all regressions standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively

Panel A

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
per424	15.25	12.30	14.79	5.490	20.80**	51.67***
	(10.01)	(10.84)	(10.10)	(10.36)	(7.666)	(15.43)
count424	-0.195	0.220	0.519	0.561**	1.594**	2.312
	(0.447)	(0.207)	(0.309)	(0.265)	(0.608)	(1.722)
Constant	63.08	56.41	97.20	146.7**	30.89	-3.695
	(126.8)	(86.04)	(90.92)	(67.22)	(92.43)	(163.5)
Observations	212	205	208	204	211	155
R-squared	0.346	0.411	0.365	0.281	0.280	0.445

Panel B

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
per424	14.50	11.68	14.26	4.759	19.13**	50.79***
	(10.02)	(10.85)	(10.06)	(10.51)	(7.677)	(14.01)
count424	-0.203	0.186	0.484	0.510*	1.588**	2.375
	(0.393)	(0.214)	(0.308)	(0.267)	(0.644)	(1.659)
QualityRating	5.098**	4.942**	5.137***	5.775**	9.843***	14.64
	(1.968)	(2.128)	(1.693)	(2.486)	(2.757)	(8.444)
Constant	95.99	89.67	130.7	186.3**	96.27	90.61
	(123.0)	(86.39)	(88.31)	(65.70)	(119.8)	(224.4)
Observations	212	205	208	204	211	155
R-squared	0.359	0.427	0.378	0.293	0.299	0.462

Panel C

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
per424	13.15	11.41	13.26	2.456	18.14**	50.15***
	(10.93)	(11.84)	(11.35)	(12.80)	(6.852)	(15.03)
count424	-0.139	0.255	0.577**	0.590**	1.652**	2.403
	(0.421)	(0.245)	(0.242)	(0.252)	(0.586)	(1.716)
QualityRating	5.136**	4.779**	5.000**	5.619**	9.805***	14.64
	(2.073)	(2.232)	(1.771)	(2.504)	(2.857)	(8.557)
SatisfactionRating	-11.82***	-7.841***	-10.86**	-11.41	-10.67	-4.311
	(2.856)	(2.371)	(4.004)	(6.608)	(9.730)	(17.69)
Constant	71.47	65.93	101.9	165.7***	68.06	75.90
	(114.0)	(79.28)	(70.94)	(47.10)	(124.6)	(245.3)
Observations	212	205	208	204	211	155
R-squared	0.390	0.445	0.405	0.316	0.308	0.463

Table B-7. Change in employee opinions due to market reaction (Robustness)

This table presents "changes in employees' opinions" six months after the IPO compared to the nine months before the IPO when we exclude reviews collected during the last three months before the IPO because employees might be informed about the possibility of forthcoming IPO and this may have an impact on employees' opinions. Gaps are defined based on [after] minus [before]. The sample contains 175 firms. Results follow findings on Table 1-13-C showing that employees' opinions do not change just because of going public. Results remain the same even if we drop employees' reviews collected during the last six months (instead of last three months) before the IPO. (Sample size 150 firms)

	Mean	T-test	Obs.
GAP in Mean of QualityRating	- 0.071	- 0.93	161
GAP in Mean of SatisfactionRating	-0.038	-0.83	161
GAP in St deviation of QualityRating	0.027	0.31	161
GAP in St deviation of SatisfactionRating	0.058	0.55	161

Table B-8. Economic significance of employee opinions

Panel A: Provides economic significance of employee opinions variable (only QualityRating) using normal standardized variables. Prefix of "z" before variables' name means that the distribution is shifted to normal-standard. (All control variables' distributions are shifted into normal standard as well). Dependent variables are one day, one week, one month, three month, six month, and one year excess return after the IPO. Control variables are: zper424, zcount424, zperS1, zcountS1, zage, zsize, zPRICE, zVC, zPE, zNch2Wbef, zD_offerUP, zD_offerDOWN, zD_tech, zD_topUnderwriter, zD_big4, zreviews. Panel B: Similar to Panel A, other than the inclusion of the normalized SatisfactionRating variable. Panel C: Provides economic significance of dispersion in the employees' view (SD_QualityRating, SD_SatisfactionRating) using normal standardized variables. Prefix of "z" before variables' name mean that the distribution is shifted to normal-standard. In the first three columns we test for zSD_QualityRating, and the second three columns we have zSD_SatisfactionRating. Here the dependent variable is the normal standard distribution of one-year firms' volatility (measured by standard deviation of one year firms' excess return after the IPO). In the first and fourth regressions we have no control variable except year and industry fixed effect. In the second and fifth regressions we add these control variables: age, size, PRICE, VC, PE, Nch2Wbef, D_offerUP, D_offerDOWN, D_tech, D_topUnderwriter, D_big4, Reviews. In the third and sixth regressions we added: zper424 zcount424 zperS1 zcountS1, zLHratio. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

Panel A

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
zQualityRating	0.122**	0.151**	0.186***	0.232***	0.190***	0.190*
	(0.0461)	(0.0603)	(0.0459)	(0.0453)	(0.0459)	(0.106)
Constant	-0.436	-1.494**	-0.317	-0.709*	0.344	2.884***
	(0.583)	(0.547)	(0.526)	(0.349)	(0.325)	(0.758)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Control Variables	Y	Y	Y	Y	Y	Y
Observations	204	198	199	198	203	146
R-squared	0.360	0.400	0.363	0.291	0.281	0.417

Panel B

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
zQualityRating	0.123**	0.150**	0.185***	0.232***	0.190***	0.190*
	(0.0463)	(0.0632)	(0.0488)	(0.0463)	(0.0470)	(0.105)
zSatisfactionRating	-0.193***	-0.131***	-0.146*	-0.108	-0.0792	0.0262
	(0.0366)	(0.0424)	(0.0757)	(0.110)	(0.103)	(0.137)
Constant	-0.385	-1.444**	-0.255	-0.656*	0.365	2.877***
	(0.510)	(0.536)	(0.535)	(0.370)	(0.307)	(0.776)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Control Variables	Y	Y	Y	Y	Y	Y
Observations	204	198	199	198	203	146
R-squared	0.391	0.413	0.378	0.299	0.286	0.417

Table B-8 Continued

Panel C

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
zSD_QualityRating	0.143** (0.0640)	0.130** (0.0489)	0.176*** (0.0518)			
zSD_SatisfactionRating				0.101** (0.0373)	0.0308 (0.0381)	0.0184 (0.0357)
Constant	1.303*** (0.117)	0.907*** (0.104)	1.199** (0.466)	1.249*** (0.0884)	0.955*** (0.130)	1.270** (0.521)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Control Variables	N	Y	Y	N	Y	Y
Observations	244	218	198	244	218	198
R-squared	0.287	0.510	0.582	0.280	0.497	0.562

Table B-9. Employee opinions and excess return
(presence of all executive disclosure variables)

This table presents the significance of employee opinions before the IPO on firms' excess return after the IPO, when we add executives' disclosure to the models. The dependent variable is IPO excess return, and independent variables are QualityRating and SatisfactionRating along with control variables: SP500, DRD, firm age, IPO size, PRICE, D_Price, VC, PE, Nch2Wbef, D_offerUP, D_offerDOWN, D_tech, D_topUnderwriter, D_big4, D_large, D_small, D_young, D_old, Reviews. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively. (The same as Table 1-5-C when we add SatisfactionRating)

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
QualityRating	4.604***	4.411**	5.674***	6.578**	11.01***	16.23*
	(1.584)	(1.983)	(1.779)	(2.407)	(2.803)	(8.076)
SatisfactionRating	-12.00***	-7.802***	-9.567**	-9.235	-7.562	-1.616
	(2.645)	(2.175)	(3.927)	(6.496)	(10.37)	(19.20)
per424	18.36	7.289	9.399	-2.292	15.66	45.88**
	(11.70)	(12.49)	(11.50)	(10.70)	(12.43)	(21.23)
count424	-0.212	0.197	0.664*	0.760**	2.128***	3.378
	(0.490)	(0.430)	(0.365)	(0.268)	(0.481)	(2.164)
perS1	-22.38**	-0.0855	3.173	-0.0819	-8.811	-20.51
	(8.193)	(6.277)	(4.867)	(7.334)	(12.37)	(20.13)
countS1	0.0667	0.821**	0.770**	1.580**	1.136	1.004
	(0.573)	(0.313)	(0.339)	(0.575)	(0.726)	(1.213)
Constant	86.73	32.76	78.32	118.8**	28.79	19.36
	(103.7)	(94.98)	(88.64)	(54.26)	(96.02)	(220.4)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Control Variables	Y	Y	Y	Y	Y	Y
Observations	204	198	199	195	203	146
R-squared	0.396	0.425	0.407	0.337	0.320	0.476

Table B-10. Robustness: Employee opinion Vs excess return
dropping initial day performance

This table presents the relation between employees' opinions about the quality of the firm and their pre-IPO satisfaction with the firm and firm excess return after the IPO, dropping the initial IPO day excess return. Here, the dependent variable is firms' excess return starting from a day after the IPO day. Results are similar if we add D_large_size, D_small_size. DRD, D_Price, D_old, D_young, to the regression. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively. The table is similar to Table 1-8-A with addition of SatisfactionRating.

VARIABLES	(1) 1D	(2) 1W	(3) 4W	(4) 60D	(5) 180D	(6) 1Y
QualityRating	2.671**	3.122***	4.174***	5.614***	5.815***	9.618*
	(1.187)	(0.708)	(1.034)	(1.242)	(1.421)	(4.968)
SatisfactionRating	-2.504***	-2.075*	-3.032	-5.663	-6.011	5.662
	(0.633)	(1.144)	(3.349)	(4.986)	(6.325)	(12.30)
SP500	0.167	-0.0211	-0.345***	0.320*	0.259*	-2.175**
	(0.0963)	(0.0780)	(0.106)	(0.154)	(0.147)	(0.845)
Firm age	-0.906*	-1.084*	-0.218	1.428	0.225	0.590
	(0.504)	(0.572)	(0.728)	(1.178)	(1.296)	(2.668)
IPO size	-4.365***	-3.308*	-3.890***	-1.221	-2.892	-2.628
	(1.481)	(1.629)	(1.258)	(1.189)	(2.102)	(3.372)
PRICE (log)	14.84***	14.71***	14.20***	13.89***	7.085	10.03
	(3.378)	(4.023)	(3.880)	(3.800)	(6.267)	(16.39)
VC	4.210	3.651	0.410	1.800	19.82**	1.919
	(2.611)	(2.333)	(4.270)	(4.562)	(9.288)	(12.49)
PE	0.509	-0.475	-1.821	-1.087	14.49***	13.33**
	(2.894)	(2.723)	(4.573)	(3.438)	(4.419)	(4.772)
Nch2Wbef	0.739**	0.569**	0.581*	0.895	1.824**	-0.755
	(0.294)	(0.257)	(0.328)	(0.521)	(0.684)	(1.219)
D_offerUP	-4.843*	-4.917**	-6.692**	-11.53***	-12.37***	-10.94
	(2.311)	(1.769)	(2.775)	(3.628)	(2.760)	(11.52)
D_offerDOWN	-1.565	0.999	1.362	5.732	9.767**	14.11
	(1.687)	(2.248)	(3.168)	(3.909)	(3.706)	(10.21)
D_tech	-1.489	-0.820	-2.653	-1.967	-4.883	-3.521
	(1.121)	(1.558)	(2.149)	(2.929)	(6.523)	(9.703)
D_topUnderwriter	-1.785	0.189	2.714	-5.273	0.552	-3.954
	(1.478)	(2.552)	(3.495)	(3.607)	(9.479)	(13.03)
D_big4	-1.710	-2.515	-3.017	-4.177	-12.21	3.778
	(5.586)	(5.166)	(7.886)	(10.53)	(16.78)	(25.92)
Reviews	-4.923	-2.355	-6.859	-3.841	-19.46	-69.85***
	(10.24)	(9.960)	(6.110)	(8.884)	(15.56)	(16.71)
Constant	48.02	23.86	48.16**	1.027	54.65	70.01
	(31.96)	(33.13)	(22.68)	(17.35)	(34.90)	(46.36)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Observations	219	219	219	217	218	161
R-squared	0.201	0.199	0.135	0.165	0.198	0.309

Table B-11. Robustness: Employee opinion and excess returns
dropping one/two-week performance following IPO

The table presents relation between pre-IPO employees' opinions and firm excess return after IPO day, while dropping the one-week excess returns after IPO initial day (Panel F1) and two weeks excess return (Panel F2). All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively. The table is similar to Table 1-8-B with the addition of SatisfactionRating.

	Panel F1			Panel F2		
VARIABLES	60D	180D	1Y	60D	180D	1Y
QualityRating	1.864*	2.765**	4.551	2.447***	3.346***	6.760
	(1.010)	(1.056)	(4.783)	(0.792)	(1.107)	(5.177)
SatisfactionRating	-2.582	-2.638	8.165	-2.794	-3.535	9.024
	(3.481)	(5.012)	(10.12)	(2.814)	(4.362)	(9.406)
SP500	0.317***	0.206*	-2.104***	0.417***	0.312**	-1.880**
	(0.0551)	(0.105)	(0.718)	(0.0566)	(0.109)	(0.718)
Firm age	1.761**	0.290	-0.0633	1.642**	0.139	-0.819
	(0.633)	(1.104)	(2.010)	(0.583)	(0.969)	(2.118)
IPO size	1.994	-0.164	-1.966	2.128	-0.143	-2.836
	(1.267)	(2.652)	(5.180)	(1.230)	(2.619)	(5.786)
PRICE(log)	-6.116	-8.081	-0.217	-5.246	-6.662	3.778
	(5.364)	(6.639)	(14.74)	(5.476)	(7.637)	(14.89)
VC	-2.463	10.94	-3.413	-3.328	12.92	-1.465
	(3.274)	(7.706)	(11.84)	(3.070)	(7.969)	(9.790)
PE	-0.855	11.38*	6.809	-1.123	13.64**	9.574
	(2.704)	(5.510)	(9.259)	(2.704)	(5.603)	(8.112)
Nch2Wbef	0.300	1.367**	-0.615	0.0414	1.063	-1.420
	(0.318)	(0.608)	(0.983)	(0.417)	(0.656)	(1.004)
D_offerUP	-2.731	-4.392**	-3.737	-4.208***	-5.781**	-6.441
	(1.667)	(1.814)	(10.23)	(1.246)	(2.588)	(8.783)
D_offerDOWN	4.563	8.835	19.01*	3.046	7.522	17.74*
	(2.652)	(5.860)	(9.681)	(2.384)	(6.567)	(9.498)
D_tech	-2.238	-2.101	-4.377	-0.715	-0.934	-3.857
	(1.814)	(4.829)	(8.647)	(1.572)	(5.071)	(8.175)
D_topUnderwriter	-1.333	2.123	1.539	-2.608	1.337	3.169
	(2.891)	(7.525)	(15.37)	(2.404)	(8.213)	(15.50)
D_big4	-1.049	-7.119	1.982	-1.685	-8.607	4.778
	(3.436)	(11.93)	(27.40)	(3.452)	(11.01)	(28.35)
Reviews	-1.946	-16.20	-76.75***	-3.429	-16.40	-71.61***
	(4.861)	(11.96)	(18.94)	(4.654)	(9.895)	(20.74)
Constant	-7.312	32.79	79.21	-13.06	33.24	91.39
	(19.64)	(54.93)	(103.5)	(18.14)	(54.53)	(100.5)
Year Dummy	Y	Y	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y	Y	Y
Observations	223	224	167	223	225	168
R-squared	0.218	0.242	0.321	0.235	0.254	0.313

Table B-12. Employee pre-IPO uncertainty and Post-IPO market volatility

This table shows the relation between employees' pre-IPO dispersion of opinion on satisfaction, and stock price volatility after the IPO. Dependent variable is volatility of daily excess return over 365 days after the IPO measured by the standard deviation of daily excess return. (While the excess return is daily holing period return minus value weighted market return both from CRSP). The first regression has only one RHS variable. In regression two we add these control variables: SP500, age, size, PRICE, D_Price, VC, PE, Nch2Wbef, D_offerUP, D_offerDOWN, D_tech, D_topUnderwriter, D_big4, D_young, D_old, D_High_count, D_large_size, D_small_size Reviews, and DRD. In regression three: we add PerS1, CountS1, Per424, and Count424. In regression four we add six months excess return, and LHratio to regression three. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively. (The same as Table 1-9 when we replace SD_QualityRating with SD_SatisfactionRating)

VARIABLES	(1)	(2)	(3)	(4)
SD_SatisfactionRating	0.00603**	0.00232	0.00247	0.00254
	(0.00223)	(0.00242)	(0.00180)	(0.00168)
per424			0.00116	0.000806
			(0.00253)	(0.00230)
count424			-0.000160	-0.000220
			(0.000202)	(0.000184)
perS1			0.000154	0.000110
			(0.00289)	(0.00261)
countS1			0.000127	-6.74e-05
			(7.46e-05)	(0.000139)
6-month excess return				6.89e-06
				(6.16e-06)
LHratio				-0.0400**
				(0.0163)
Constant	0.0367***	0.0254*	0.0396***	0.0714***
	(0.00124)	(0.0131)	(0.0126)	(0.0203)
Year Dummy	Y	Y	Y	Y
FF38 Dummy	Y	Y	Y	Y
Control Variables	N	Y	Y	Y
Observations	244	218	198	196
R-squared	0.280	0.559	0.600	0.619

Table B-13. Change in adjusted R-squared when employee opinions are included

The table below shows changes in R-squared and adjusted R-squared of the model from adding/dropping different variables. Adding employee opinion variables increases model adjusted R-squared more than 3 percent. The dependent variable in all regressions is the one-day excess return. Regression (1) includes IPO/firm variables typically used in the IPO literature. Executive disclosure variables are added in regressions (2), (3), and (4). In regression (5), (6), (7) we add employee opinion variables to the model. All regressions are industry and year fixed effect. Standard errors are clustered at industry level. Variables definitions are in Appendix A. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) ex1D	(2) ex1D	(3) ex1D	(4) ex1D	(5) ex1D	(6) ex1D	(7) ex1D
Firm age	0.889	0.313	0.870	0.538	-0.521	-0.408	-0.00846
	(2.222)	(1.934)	(2.427)	(2.619)	(2.474)	(1.789)	(2.285)
IPO size	-6.868**	-7.408**	-8.170***	-8.890***	-9.055***	-7.429**	-8.341***
	(2.637)	(2.883)	(2.409)	(3.069)	(3.024)	(2.710)	(2.300)
PRICE (log)	31.67***	37.03***	37.33***	38.68***	38.82***	36.64***	37.54***
	(8.544)	(7.609)	(5.763)	(5.194)	(5.923)	(8.220)	(6.393)
VC	23.05**	27.45**	18.95**	20.98**	17.42*	22.46**	15.96
	(8.301)	(9.838)	(8.774)	(8.645)	(8.897)	(9.677)	(9.422)
PE	20.36***	23.23**	17.79*	19.89**	16.83*	19.02**	15.39*
	(5.765)	(8.476)	(8.653)	(9.037)	(8.820)	(7.831)	(8.686)
Nch2Wbef	0.334	0.921	0.672	0.623	0.767	1.041*	0.799
	(0.598)	(0.608)	(0.753)	(0.659)	(0.756)	(0.583)	(0.906)
D_offerUP	10.49	10.62	6.908	7.295	5.832	8.699	5.389
	(6.663)	(7.259)	(5.785)	(6.377)	(6.100)	(6.515)	(5.496)
D_offerDOWN	-3.314	0.0141	-0.784	-1.109	1.609	2.591	1.318
	(3.524)	(3.674)	(4.153)	(4.022)	(4.638)	(3.772)	(4.591)
D_topUnderwriter	3.822	-1.831	0.934	0.354	-4.815	-6.539	-4.041
	(9.136)	(12.33)	(11.92)	(14.11)	(13.74)	(11.60)	(11.41)
D_big4	-3.685	-1.854	0.272	-0.352	0.818	0.0493	1.451
	(6.039)	(5.430)	(4.345)	(5.062)	(4.283)	(4.654)	(3.623)
D_tech	-1.403	3.586	8.017***	5.022*	5.311	3.137	8.162***
	(1.872)	(2.388)	(2.055)	(2.708)	(3.508)	(3.632)	(2.549)
HLratio	-138.6***	-150.2***	-146.7***	-156.5***	-113***	-109.4***	-106***
	(41.93)	(25.53)	(32.82)	(24.70)	(26.73)	(23.92)	(26.90)
Reviews	11.56	19.10	10.70	18.26	17.40	16.59	9.610
	(19.31)	(21.43)	(21.21)	(20.50)	(21.30)	(22.22)	(22.31)
perS1		-9.598		-14.80*	-17.96*	-12.32	
		(8.028)		(8.210)	(9.104)	(9.034)	
countS1		-0.200		-0.239	-0.170	-0.101	
		(0.672)		(0.737)	(0.757)	(0.655)	
per424			9.159	14.43	14.13		7.675
			(18.29)	(15.47)	(16.64)		(19.46)
count424			-0.358	-0.374	-0.338		-0.258
			(0.382)	(0.460)	(0.379)		(0.362)
QualityRating					4.269**	5.458**	4.066**
					(1.637)	(1.977)	(1.726)
SatisfactionRating					-11.36***	-10.33***	-10.43***
					(3.460)	(3.618)	(3.347)
FF38 Dummy	Y	Y	Y	Y	Y	Y	Y
Year Dummy	Y	Y	Y	Y	Y	Y	Y
Observations	226	204	207	196	196	204	207
R-squared	0.34	0.375	0.379	0.390	0.421	0.408	0.407
Adj. R-squared	0.206	0.217	0.221	0.217	0.248	0.249	0.246

Table B-14. Distribution of employees' Glassdoor reviews

Table addresses questions regarding employees that post reviews on Glassdoor. The notion is that the typical employee may not have much motivation to post a public review. However, employees with extreme views, whether positive or negative, may have great incentive to post their ratings. Also, employees that own stock might want to express excessively positive views. Table shows that the distribution of the data among "one-star" rating (which is the lowest review can be posted), "five-star" rating (highest review), and other levels of average ratings are not dramatically different.

	Overall Rating	Work-Life Balance Rating	Opportunity Rating	Compensation Rating	Outlook Rating	CEO approval Rating	Recommend to Friend Rating
Obs.	64,264	60,384	60,084	59,857	64,264	64,264	64,264
Mean	3.16	3.18	3.08	3.09	0.15	0.20	0.09
St. Deviation	1.85	1.34	1.33	1.28	0.68	0.71	0.92
Skewness	-0.18	-0.25	-0.11	-0.16	-0.20	-0.32	-0.17
Kurtosis	1.80	1.90	1.89	1.99	2.14	1.99	1.19
1 star & (1.5)	16.01%	17.00%	17.14%	15.52%	-	-	-
2 stars & (2.5)	17.13%	14.16%	17.83%	17.32%	-	-	-
3 stars & (3.5)	22.51%	24.63%	25.82%	26.92%	-	-	-
4 stars & (4.5)	23.60%	24.87%	21.54%	25.06%	-	-	-
5 stars	20.75%	19.34%	17.67%	15.17%	-	-	-
Positive opinion	-	-	-	-	32.05%	37.75%	47.50%
Negative opinion	-	-	-	-	16.60%	17.33%	38.68%
Neutral opinion	-	-	-	-	51.35%	44.92%	13.82%

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2 Chapter 2: Employee Opinions and Their Textual Disclosure Reliability

2.1 Introduction

We investigate whether employee can be a source of "insider" information about their firms. In particular, can employees, through their expressed opinions, provide valuable non-public information about their firms on a continual basis? Employees do not have access to the information available to firm executives, but they may still have access to information that is not available to the public. Despite employees' limited access to information outside their specific function, their aggregated opinions may render an informed picture of the firm. We would also expect employees' anonymous opinions available in websites such as Glassdoor to be relatively unbiased. This is unlike public statements by firms' executives that may have a strong incentive to inflate a firm's prospects to send a positive signal to the market.

Individual employee information is not as comprehensive as that available to executives. While their information is likely to be specific to their own work place and division, they may have better insight into the quality of the local work environment than more senior executives. For instance, they may have better knowledge of the morale and motivation of their colleagues. We speculate that employee opinions, at least in aggregate, could provide reliable information about future firm performance on an ongoing basis. In Chapter one we have shown that these kinds of information is predictive of firm performance in IPO context. In this Chapter, we investigate whether this source of firm information is predictive of firm performance in contexts other than IPOs.

There are formal channels that firms normally use to transfer news and information from non-executive levels to the management team and decision makers. If these information channels work properly, and further, if executives accurately transmit the information to the public, then employees' information would be expected to be redundant and to be reflected in the firm's stock market

value. On the other hand, if there is empirical evidence that employees' information is predictive, this would imply either that employees' information is not clearly communicated to the executives, or the executives do not accurately transfer that information to the market.

Our employee opinions data come from the Glassdoor website. A detailed description of the data is provided in the data section. In this chapter we construct both annual and monthly averages of employee opinions to test for concurrent and future performance predictability. Our finding is that employee opinions, and the monthly and annual level of dispersion in these opinions are predictive of firm performance and firms' level of volatility. These findings indicate that employees' information is valuable and is not incorporated in market prices.

In the first chapter we show that there is a negative relation between employees' personal sense of well-being (measured by their opinions about their compensation and also their work-life balance) and firm performance in the context of IPOs, when we control for employees' views on firm quality. In general, the labor economics literature suggests a positive relation between employees' satisfaction and firm performance, (see Akerlof [1982], Pagano and Volpin [2005], and Shapiro and Stiglitz [1984]), implying that work satisfaction would lead to additional employee effort. On the other hand, an alternative argument, following Quiet life hypothesis[48], is that there may be a trade-off between employees' work satisfaction and shareholders' wealth. Managers seeking a 'quiet life' would rather have employees happy and satisfied, rather than pressurizing them to increase productivity. Our results provide support for the Quiet life hypothesis.

While employees could have value-relevant information, their perception of firm quality and their well-being in the firm could be influenced by their views of stock market participants. This is what we documented in the first chapter where we showed that employee opinions about their firm dramatically drop due to the negative market reaction to the firm's IPO. In the first chapter, we relied on pre-IPO employee opinions to ensure that employees' opinions were not influenced by the firm's stock market valuation. In this Chapter, we take care of this issue by using lagged employee opinions to predict future firm performance while we also control for lagged and concurrent firms' performance. Hence, we control for current firm performance in testing for whether employee

[48]SeeBertrand and Mullainathan [2003]

opinions can predict firm future performance.

We have nine highly correlated Glassdoor variables. All these variables are predictive of firm's performance (Tables 2-3-A, 2-3-B). We use Principal Component method to decrease dimensions of these nine variables to one dimension in our further tests[49]. This component should capture information available in all Glassdoor variables summarizing employee opinions of firm prospects and managerial quality (AggregateRating). We hypothesize that employee opinions about firm and executives is associated with concurrent firm performance, and also predictive of future firm performance. Our finding is that employees' opinions are predictive of future firm performance for more than a year after the date employee opinions are collected. Either employees' information is not transferred to the managers, or executives don't provide that piece of information to the public. We also show that our findings are not driven by the effect of market reactions on employee. Results are consistently predictive of future performance even when we control for the firm value and performance at the time we collect employee opinions.

In terms of economic significance, our results indicate that a 1-standard deviation higher AggregateRating in year $(t-1)$ is associated with 4.7% increase in Tobin Q ratio in year (t), while we control for lagged firm performance and characteristics.[50]

Next, we examine the relation between monthly dispersion in the employees' view, and monthly stock excess return volatility. We find that the dispersion in views are correlated with concurrent and future stock excess return volatility up to a month after. This suggests that dispersion in employee views is echoed in market players' uncertainty about the firm, but it would be captured by the market in the way the effect would be disappeared in two months. In terms of economic importance, one unit increase in standard deviation of employees' uncertainty about AggregateRating is associated with 1% higher excess return volatility, (in more restricted Fixed Effects compared to our other tests) and lagged monthly excess return and monthly volatility of excess return.[51]

In the first chapter showed employees' personal sense of well-being (specifically, work-life balance and compensation rating) is predictive as well. As explained above, the relation between employees'

[49] We exclude senior management rating from the PCA calculations due to significant amount of missing data.

[50] Calculation is based on a standard deviation of 1 for AggregateRating and coefficient of 0.0475 (Table D-5 in Appendix D)

[51] Calculation is based on a standard deviation of 1 for AggregateRating and coefficient of 0.01(Table 2-7 Panel 2)

sense of well-being and firm value/performance is ambiguous and ultimately is an empirical question which we tested in the IPO context. Here, we examine whether our IPO findings about work-life balance and compensation, along with a principal component measure based on these variables (SatisfactionRating), can be expanded in a general form: controlling for AggregateRating as well as other firm control variables, employees' sense of well-being is negatively associated with firm performance.[52] Results are consistent with the notion of 'quiet-life' (Bertrand and Mullainathan [2003]) and the first chapter findings. Hence, the SatisfactionRating variable could capture a less-stressful work environment, or generous benefits and compensation, while it is, of course, at the expense of shareholders. Our results indicate that a 1-standard deviation increase in SatisfactionRating at time (t) is associated with a 1.3% lower future Tobin Q ratio at time ($t + 1$), controlling for concurrent employee views on firm quality and firm performance.[53]

Our findings also show employees opinions, as a source of insider information, is more valuable when it is less likely to be leaked. Employees' information is less valuable in larger and older firms and when large number of reviews is available. Employees' information is also more valuable in case of more uncertainties about the firm. Firms that had worse performance in previous year, firms that had more stock excess return volatility during the last year, Tech firms, and in cases of more corruption[54] are some examples of greater uncertainty.

Glassdoor also let employees provide three written forms of reviews, their pros, cons and their advice to managements. In additional tests we examine the informativeness of employees' textual disclosure. If employees are considered as a group of firms' insiders, like executives, we can analyze employees' text in the same way executives' texts are tested in the literature. Following the conventional method that is used in financial textual analysis [55], we examine tone of employees' text as an informative variables. Employees' tone is measured by the percentage of negative (uncertain, positive) words in their text, while list of meaningless words are excluded from the calculation of

[52] AggregateRating and SatisfactionRating are positively related. If we do not control for AggregateRating and various firm variables, the SatisfactionRating is positively related to the firm performance.

[53] Calculation is based on a standard deviation of 0.515 for Adjusted SatisfactionRating and coefficient of 0.0259 (Table D-5 in Appendix D)

[54] See Butler et al. [2009] for the measure of state level corruption

[55] look at Loughran and McDonald [2010], Loughran and McDonald [2011], Loughran and McDonald [2013], Loughran and McDonald [2014], Bodnaruk et al. [2015], and their literature review Loughran and McDonald [2016]

these percentages. All lists of positive, negative, uncertain, and meaningless words (Stop words) are collected from Loughran & McDonald master dictionary. Results show that percentage of negative, and percentage of uncertain words in employees' text is negatively associated with firm value (measured by Tobin Q ratio). We also show that percentage of negative words is negatively related to the firm performance (measured by ROA). We also document that negative employees tone is predictive of long-term future stock volatility. We also show different areas of interest in employees' texts and their weight of each concern in text. We finally show that employees' motivation to provide more extensive texts is positively associated with firm performance.

We believe that our findings are important for several reasons: First we introduce a new reliable source of insider information which is semi-publicly available, but has not been recognized. Second, while efficient market hypothesis assumes that all public information should be reflected into the market, we empirically show that employees' information is concurrently informative and also predictive of the future performance. This shows that employees' information is not reflected into the market. We also show that employee information gradually reflected into public, since employees' information is predictive of three years ahead of the reviews collection date, even when we control for concurrent and future firm performance and other characteristics.

The remaining part of this Chapter is organized as follow. Section 2.2 reviews the literature and related works. Section 2.3 describes the data and summary statistics. Section 2.4 provides the empirical analysis. Section 2.5 is the conclusion. We also provide variables description in Appendix C, while Appendix D provides results for some robustness tests.

2.2 Related Literature and Hypothesis Development

2.2.1 Related Literature

This Chapter is generally related to an extensive literature on firm performance, valuation and pricing, and more specifically to issues such as "insider information", and "employees' satisfaction". Traditionally, firm value and performance has been linked to various firm characteristics (e.g., firm size, age, industry, information asymmetry, etc.), and market conditions (e.g., 'hot' market).

While executives have been known to be the only source of insider information (e.g. effectiveness of executives trades: Seyhun [1985], Alldredge and Cicero [2015], employees have not been considered as source of non-public information. The first chapter shows employees, at least in aggregate, have valuable non-public information, in our US IPO sample. We show that employees have sort of information that executives did not have, or did not want to release to the market. We show that top underwriters, venture capitalists, and even big four audit firms could not (or did not want to) capture and release non-public information that was voluntarily disclosed by employees. We also show that employees information gradually captured by the market after the IPO.

Performance literature can be also related to the literature of firm culture and employee satisfaction. There is a challenging debate on employee satisfactions' relation with firm valuation and performance. One side of traditional labor economics literature (see Akerlof [1982]) argues that employees' satisfaction is positively related to the firm performance, since each unit of extra satisfaction (i.e. extra compensation) would be considered as an extra gift for employees, and their rational reaction to the extra gift would be extra effort for the company.Taylor[1914] , on the other hand, argue that employees' satisfaction can be considered as an unnecessary cost. Taylor says employees should be treated like any other production elements while management goal is to maximize the firm output (performance) using all production elements. Considering cost minimization notion, employees extra satisfaction (i.e. overpaid) is just waste of money which would lead to lower firm performance.Bertrand and Mullainathan [2003] expanded the area by their Quiet life hypothesis saying that more employees' satisfaction (less-stressful and easygoing environment, lower workload, and extra compensation) is apparently a gift from poorly-performed managers to keep employees quiet and happy, but of course, it is at the expense of shareholders. In more empirically focused studies, Ostroff [1992] and Harter et al. [2002] find positive link between employee satisfaction and firm productivity. Fulmer et al. [2003] find that the best companies emphasize employee relations, while Oswald et al. [2015] find a positive relation between happiness and productivity. Faleye and Trahan [2011] show that labor-friendly firms perform better than other similar firms, both in long run stock returns and also operating results. Edmans [2011], and Edmans [2012] shows positive relation between employees' satisfaction and firm performance. More specifically, he finds that firms

whose employees have higher levels of job satisfaction can generate higher long-term stock returns. Edmans et al. [2014] expands Edams's previous works internationally, and report similar results for different countries. They also find employees' satisfaction is associated with positive abnormal returns in countries with high labor flexibility. Green et al. [2018] shows employees' reviews about their firms are associated with growth in sales and profitability and help forecast one-quarter ahead earnings announcement surprises[56]. The first chapter shows employees satisfaction is a positive element, but up to a point. We shows that unadjusted employees satisfaction (it means when we do not control for firm quality) is positively related to the firm performance after the IPO, while employees' adjusted satisfaction (it means employees satisfaction when we control for firm quality) is negatively related to the firm performance. Our IPO related findings are consistent with Maslow [1943] and Herzberg [1959] where they consider satisfaction's positive effect can be stablished just up to a point.

In this Chapter we investigate whether we can generalize our small IPO sample findings on a broader context of continuous firm performance and valuation over time, while we have firms with different characteristics, and market has access to more expanded information about these public firms. It means we test if employees' information is valuable in cases of lower information asymmetry, compared to IPO context that is one of the highest asymmetric information condition. Here, since we focus on a boarder range of employees' data, we can analyze the informativeness of another part (textual) of information provided by employees. If we are supposed to present aggregate employees' information, as a reliable source of insider information, we should rely on employees' texts in the same way the literature does with executives' texts.

2.2.2 Hypotheses

Our first hypothesis addresses our main idea which is informativeness of employee opinions about the quality of their firms, CEO and managers, and personal satisfaction in the firm, in continuous generalized form (compared to IPO), using Glassdoor data. Finance literature assumes executives and senior managers as the only source of insider information, arguing that they have access to ex-

[56]I had defended my proposal contained the same results on June 23rd, 2015. More than 2 years before their paper

tensive range of information about the firm current conditions, and they are decision makers for the firms' future plans. On the other hand, employees may not have the broad firm-level information at the executives' level. They are not also decision makers for firms' future plans, but still they may have accurate mid-level information that is specific to their own team/department. This leads to our hypothesis that employee reviews could provide valuable information that is associated with current, and would be predictive of future firm value and performance.

H1: If employees can continuously provide valuable non-public information about their firms in each period, we expect that aggregation of employee opinions about firm to be positively related to the firm performance and value.

There can be considerable heterogeneity in employees' reviews about their firm quality, CEO and senior management, and their personal satisfaction in the firm. Since we believe employees have some sort of non-public information, and their information would somehow leaked to the market (e.g. friends or personal trades) we can expect that employees' uncertainty to be echoed to the market as well. We hypothesize that greater divergence in employee opinions could be related to higher market volatility both in current and future condition. Hence:

H2-1: Divergence between employees' opinions about their firms is expected to be positively related to concurrent stock volatility.

H2-2: Divergence between employees' opinions about their firms is expected to be positively related to future stock volatility.

Our next hypothesis addresses the generalization of our IPO finding about employees' unadjusted and adjusted satisfaction. While satisfaction may have different psychological definitions, following the approach in the first chapter, we rely on simplest financial understanding about satisfaction: what employees do for the firm, versus how firm compensates their effort. It means that

in our study, satisfaction includes employees' opinions about their personal work-life-balance and compensation. We know that there is a strong correlation between employee satisfaction and firm quality. So we expect that unadjusted satisfaction to behave in the same shape as employee opinions about the firm quality (i.e. employees have better personal condition in better firms). However, adjusted satisfaction (which means employees satisfaction after controlling for firm quality opinions) association, is ambiguous to whether to be positively or negatively related to firm value and performance.

As explained above, several empirical studies show positive relation between employee satisfaction and firm performance. However, none of them control for the firm quality simultaneously. It means that it is possible to see employees' high level of satisfaction is not coming from the high level of firm quality, and it comes from surplus gifts from management at the expense of shareholders. It is an empirical issue to see whether our IPO findings about negative effect of adjusted satisfaction can be generalized or not. We state:

H3: Employees' satisfaction could be associated with poor management that can come from the expense of shareholders, not form firm quality. Hence, employee satisfaction, controlling for employees' views on firm quality, could be associated with lower firm value and performance

There are some cases that we may expect to see more complexities, and uncertainties about the firm and also about the information provided. We expect to see more complexities in younger, smaller, less publically available employee reviews, and also Tech related industries. We also expect to see corrupt locations, firms with more volatile stock, and low performance firms as examples of more future uncertainties.

Information, by its nature, is not homogeneously informative in different situations. Considering an extreme case in which information is provided to everyone, then we would expect to see it worthless. It is logical to see information is more valuable when it is provided to a smaller group of people, or when information is expected to be leaked later. We also expect to see insider information to be more valuable in case of more outside uncertainties. Then we can conclude this to our

next hypothesis:

H4: Considering employee opinions as a source of insider information, we expect to see it become more valuable when it is less likely to be leaked, or when there are more uncertainties about the firm.

Remarkable portion of insider information literature, focuses on executives' disclosure based on textual analysis. It is true that employees have much limited insider information compared to executives, but we expect, at least in aggregate, employees' textual disclosure to behave in a similar way as executives. Following executives textual analysis literature, which is relied on positive, negative, and uncertain tone of executive disclosure and its relation with firm's performance, we can state our next hypothesis as:

H5-1: Positive tone in employees' disclosure is expected to be positively correlated with firm performance and value.

H5-2: Negative (and Uncertain) tone in employees' disclosure is expected to be negatively associated with firm performance and value.

H5-3: Uncertain (and negative) tone in employees' disclosure is expected to be positively associated with future stock volatility.

2.3 Data and summary statistics

Here, the main variables of interest are briefly described, along with their summary statistics. Our data on employees' opinions is obtained from the Glassdoor website.[57] Firms' financials and stock returns data are from CRSP-Compustat merged and CRSP, respectively, and in text analysis we use Loughran & McDonald's master dictionaries. We also use corruption data from U.S. Department

[57] https://www.glassdoor.com

of Justice. We begin by describing the data from Glassdoor and our measures of employee opinions.

2.3.1 Employee opinions from Glassdoor:

Since the Glassdoor data explanations are provided extensively in the first chapter, we skip repeating it again here. In this analysis, when we rely on Principal Components method which will be explained shortly, we exclude the Senior Management rating from our analyses (when we made AggregateRating as a PCF variable as aggregation of employee reviews about their firm.) because this rating is frequently left blank in our sample. Specifically, we would miss more than 30% of the sample if we add this variable in our PCF variable calculation, but results shows no change. In terms of Senior Management Rating informativeness, our results in Table 2-2-B, as well as 2-3-A and 2-3-B show that Senior Management Rating, as a stand-alone explanatory variable, is informative as well as other Glassdoor variables.

To construct our sample, we collect all employees' reviews available on Glassdoor if we can match the company identification (hand matched company names and PERMNO and GVKEY) with Compustat-CRSP merged data. Our Glassdoor data used in this test contains more than 2.1 million observations for more than 2000 firms from 2008 to the end of 2016.[58] In our merged Glassdoor-CCM sample we have more than 10,900 firm-year observations from 2008 to 2016. Over this time period there is a substantial increase in the number of employee opinions in our sample as shown in Table 2-1 Panel D. As table shows the sample contains 44,000 observations in 2008, while it has more than 400,000 observations in 2016. The increase in the number of reviews over time may reflects the increase in popularity of Glassdoor. While we have, on average, 119 individual reviews for each firm-year observation.

For our tests, we average employees' opinions for each company during each year, except for the volatility tests where we averaged monthly as well. Table 2-1 provides more detail about the data. While Table 2-1-A detailed all variables summary statistics, Table 2-1-B provides a correlation table for the various employees' opinions from Glassdoor. As documented in the first chapter, the correlations between employees' opinions are quite positive, but somehow interesting,

[58]The first Glassdoor observation in our sample is submitted in Jan 2008

the correlation between Compensation Rating (and also Work-Life Balance Rating) and other firm or executive evaluation ratings are much lower. We club the opinions into two categories that we believe capture different dimensions of employees' opinions, as correlation table shows as well: We let the first variable be a PCF instead of all employee opinions to capture aggregation of all views about the firm. The analysis indicates that only the first principal component has an eigenvector greater than one. Our label for the first Principal Component is AggregateRating.

As shown in the first chapter, employees' sense of well-being can show something distinct from their opinion about their aggregate view about their firm quality and CEO. To be able to capture this personal (and not firm related) sense of well-being we build a second PCF variable which just captures employees satisfaction from the trade-off of compensation versus work load. The Principal Competent obtained is labeled SatisfactionRating.

As indicated in Chapter one, the components of AggregateRating and SatisfactionRating are quite strongly positively correlated. To ensure that our results are not sensitive to the correlation between the variables, we orthogonalize the variables by regressing SatisfactionRating on AggregateRating and use the regression residuals in place of the original variable. We call the new variable "Adjusted" SatisfactionRating, while we call the initial PCF variable "Unadjusted" SatisfactionRating. In Tables 2-4 and 2-5 we show results for both adjusted and unadjusted SatisfactionRating. Unadjusted SatisfactionRating behaves the same as AggregateRating, while Adjusted SatisfactionRating is in opposite direction.

Since we thought the pattern of reviews could be related to the quality of information in the reviews, in the first chapter we included a variable to control 'intensity' of reviews. Results showed that this is not a true assumption, and results were consistent with or without taking care of this concern. Therefore we skip adding this variable in this Chapter. Here we can replicate all regressions with a variable of reviews intensity as well, and results would not be changed, while the review variable would not be significant. In particular, we can use log of number of reviews or log of one plus the ratio of ratio of number of reviews over number of employees working for the firm as a control variable. Table D-1 in Appendix D presents WLS regressions while we use reviews' intensity as the regression weight. Consistent results show that review intensity is not a concern in

our test.

In our IPO analysis, we showed before-IPO employees' dispersion of opinions is related to after-IPO stock volatility. Here, we consider employees' dispersion in a shorter time intervals for a more precise test of dispersion, while we add "firm times year" fixed effect to the model to take care of all annually-released financial variables related to the stock volatility, as well as "state times year" fixed effect to take care of annually location-related issues, and also "year-month" fixed effect as our time period fixed effect. Here, we consider standard deviation of employees' opinions in a monthly periods, and its relation with concurrent and future stock volatility. Variable definitions are provided in Appendix C.

An issue worth addressing again in this Chapter is that of the distribution of Glassdoor reviews data. The potential concern is that employees may be more likely to provide reviews when their views are more extreme i.e., strongly favorable or unfavorable toward the firm and/or managers. Table 2-1-C shows that this is not the case.

The next part of this study relies on another part of employee opinions provided by Glassdoor. Glassdoor lets each reviewer to post three written (textual) reviews about their firm. What they consider as firm's Pros, Cons, and their advice to management. Considering these three written sections as employees' textual disclosure we can construct another set of tests to see whether there is even extra information in employees' text which cannot be captured by our current Glassdoor variables (AggregateRating & Adjusted SatisfactionRating). Here, we have two parts. In the first part, following the executive disclosure, we look at tone of employees' text using three variables commonly used in the literature; percentage of negative words, positive words, and uncertain words.[59] We also look at firm-related employees' motivations to post more and also extended textual disclosure. In the second part we try to answer a broad question about "what do employees talk about, and "what are employees concerns" and also "what is the weight of each concern" in their texts. In terms of textual sample size, more than 1.6 million reviewer had written texts in different sizes. Some of them is only one sentence, others may be couple of paragraphs. In aggregate we have more than 58 million words in our sample.[60]

[59]Look at appendix C for variables definitions.

[60]To have a better idea about the size of 58,575,205 words, we can address the fact that each letter size paper

2.3.2 Firm and other variables

We use CRSP and also CRSP-Compustat merged to obtain firms' financial data. Of our firm variables, we have Tobin Q ratio, ROA ratio, firm Size, Leverage, RD, Asset Turnover ratio, Firm Market Share, and Dummy for Tech industries as defined in the footnote as well as the appendix C. Following the literature in firm valuation and performance tests we repeat our tests excluding Utility (SIC 4900-4999) and Financial industries (SIC 6000-6999)

In this Chapter we study monthly volatility. Here, our volatility measure is the standard deviation of daily excess returns over a period of one month[61], while measure of employees' uncertainty, as explained above, is standard deviation of employee opinions in each month.

We use CRSP daily data (consistent results if we repeat the tests by monthly CRSP data instead of daily as well) to calculate firm's excess return. Excess return is defined as holding period return minus CRSP market value weighted return. [62] We also use CRSP to collect "firm age". Firm age is defined as log of one plus the difference between dates minus first date the stock can be found on CRSP database.

Following Butler et al. [2009], where we compare employees' information in presence of corruption, we use state level corruption index from U.S. Department of Justice. The index measures per capita number of corruption convictions in each state in each year.

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contains 450-500 words. So in aggregate we have 130,167 letter size pages of text. Considering the whole sample as about 2000 firms, we can say it is more than 65 pages of textual document for each firm

[61] Following J. Ritter definition, a firm is considered as Tech if it has one of these SIC codes: 3571, 3572, 3575, 3577, 3578, 3661, 3663, 3669, 3674, 3812, 3823, 3825, 3826, 3827, 3829, 3841, 3845, 4812, 4813, 4899, 7370, 7371, 7372, 7373, 7374, 7375, 7378, 7379

Leverage is calculated as: (dltt+dlc-ch)/at, we can repeat the tests using another definition of leverage ratio which is total liability divided by total assets: lt/at. Q ratio is calculated as: $(mkvalt + lt)/((bkvlps * csho) + lt)$. No change in results if we calculate Q ratio as: $(at + (prcc_c * csho) - (ceq + txdb))/at$, or even following Following Fazzari et al. [1988], and Erickson and Whited [2011], considering Q ratio as: $(mkvalt + dlc + dltt - act)/ppegt$. Negative Q ratios are replaced by missing. Firm size is natural log of total asset. ROA is the ratio of net income over total asset. RD is the ratio of xrd expenses over total sales. Missing RDs are replaced by zero. Asset turnover ratio is the ratio of Sales over total asset. Market share is the ratio of firm sales over sales in the whole industry. While the whole industry sale is the sum of total sales of all firms in each industry. Here, industry is defined using three digit SIC code.

[62] $Excessreturn = ret–vwretd$

2.3.3 Loughran-McDonald master dictionary

Literature has shown executives' tone measured by the percentage of negative, positive, and uncertain words in executives' disclosure notes are significantly related to the different firm characteristics like performance, value, and volatility. Here, we test reliability of employees' tone in their texts using the same Bag of Words technique (here: percentage of pos./neg./unc. words in text). In our textual analysis we use Loughran-McDonald master dictionaries from McDonald's website [63] to collect the list of negative, positive, and uncertain words. There is also another list of words called "Stop words" which is the list of words that are not considered to be informative by itself [64] Following the literature we dropped "Stop Words" in our calculations of negative, positive, and uncertain words percentage. It means the percentage of negative words is calculated as "number of negative words found in the text" divided by the total number of words in the text, while we exclude Stop words from the total number of words. The same logic can be applied for the percentages of positive and uncertain words.

2.3.4 Summary Statistics

Summary statistics are provided in Table 2-1 panels A to D. As noted, Panel D provides information about number of reviews provided by employees on Glassdoor in each year, and also number of firm-year observations over time. Panel C provides a detailed correlation table among employees' reviews collected from Glassdoor. Table 2-1 Panel B shows distribution of Glassdoor reviews data among different ratings, and Table 2-1 panel A provides detailed summary statistics for variables used in this Chapter. [65]

[63] Loughran-McDonald's master dictionary is used. The dictionary publicly available here: https://sraf.nd.edu/textual-analysis/resources/

[64] What Loughran & McDonald label as Stop words are words such as "and", "the", "of", "after", "again", "allow", "never", "will", "why", "you", etc.

[65] All variables used in this research are winsorized one percent from each tail.

2.4 Empirical Analysis

2.4.1 Firm value and Performance: Univariate Evidence & Sample Matching

We begin by providing univariate evidence on the relation between employees' opinions about the firm (and their satisfaction in the firm), and firm's value and performance. As indicated in Table 2-2, firms with higher than median of AggregateRating tend to have significantly higher firm value and performance than those with below median rating. For instance, while ROA ratio at year (t) for the above median AggregateRating at year $(t-1)$ sub-sample is 0.041, the ROA ratio for the below median AggregateRating is more than 200% smaller (0.018). The patterns are similar when we compare Q ratio and excess return. Interestingly, and following the first chapter findings, firms with higher than median of Adjusted SatisfactionRating at year $(t-1)$ tend to have significantly lower firm value and performance at year (t) than those with below median rating. For example, while ROA ratio for the above median Adjusted SatisfactionRating is 0.02, the ROA ratio for the below median AggregateRating is about twice larger (0.039). Again, the patterns are similar when we compare Q ratio and annual excess return.

Table 2-2-A shows univariate evidence in two panels of concurrent (Panel B) and lagged employee opinions (Panel A). As Panel A shows, lagged employee opinions is predictive of future firm value and performance. We will take care of reverse causality concerns in a better way in multivariate analysis.

In Table 2-2-A we did not take care of any firm characteristics known by performance literature. In the next step, as shown in Table 2-2-B, we report logit regressions results for propensity score matching sample. Matchings are based on lagged size, lagged market share, lagged leverage, lagged asset turnover, lagged firm value (Q ratio), and lagged excess return, year, and industry. Treatment variable for the logit regression is defined as a dummy equal one if the employee opinions is in the highest three deciles employee ratings, and is equal zero if the employee opinion is in the lowest three deciles, and missing otherwise. It means we match similar firms that had even similar lagged performance and value, but extremely different employee views. Results provided in Table 2-2-B show that in matched firms based on lagged firm-related variables there is a significant positive

relation between employees' opinions about the firm and future firm performance. Interestingly, results shows negative significant relation between Work-life balance (and also Compensation rating) and firm performance in our matched sample.

2.4.2 Multivariate Analysis of firm value & Performance

Before staring our tests explanations, we should declare that all regressions in Multivariate Analysis section have firm, year, and state fixed effects. We also cluster standard errors at firm and state level. We only use a different approach in our monthly tests of volatility where we use firm times year, and state times year along with year-month fixed effects. [66]

Table 2-3 provides regression estimates of the relation between firm performance and various employee ratings provided on Glassdoor about firm quality, CEO and senior managers, and personal satisfaction in the firms. While we will primarily use AggregateRating and Adjusted Satisfaction-Rating principal components of employee opinions, we begin by presenting regressions in which each of the nine employee opinion variables is included individually.[67] These correlated employee opinion variables are found to be similarly related to firm value and performance, providing further reassurance about our use of these variables to construct AggregateRating and Adjusted SatisfactionRating. As indicated in Table 2-3-A, we estimate firm profitability a year after the date employee opinion collected. It means we use employee opinions over the period of year $(t-1)$ to predict firm performance at time (t). In this test we control for firm performance (and other firm characteristics) at the same time employee opinions are collected. As the table shows, employee opinions are predictive of future firm performance even when we control for the firm performance of the time employee opinions are collected. Each of these Glassdoor variables are significantly and positively related to the next year firm performance. Table 2-3-B shows the relation between concurrent employee opinions and firm performance using the same control variables and fixed effects as Table 2-3-A. Table 2-3-B shows no change in results and employee opinions are significantly related to the concurrent firm performance measured by ROA, except for work-life balance rating which is insignificant in concurrent test. Results significance is independent from our firm performance

[66] Excluding State Fixed Effect or clustering at the industry level does not change the employee opinions significance.
[67] Variables definitions can be found in Appendix C

measure. Using Tobin Q ratio as a measure of firm value we can show significance of employee opinions. Tables D-4 to D-6 in Appendix D shows results when we use Tobin Q ratio instead of ROA for concurrent and lagged employee opinions.

In Table 2-4 we start our analysis using PCF variables. In Panel A we report regressions in which we estimate firm performance (measured by ROA) using lagged employee opinions controlling for lagged firm characteristics followed by state, firm, and year fixed effects.[68] Results show that controlling for all related variables known by the literature, lagged employees' AggregateRating (Adjusted SatisfactionRating) is significantly positively (negatively) related to the future firm performance. Consistent with the Table 2-2 and the first chapter findings, unadjusted SatisfactionRating is positively significant. In first three regressions we report results for each PCF separately. In regression 4 we show that adjusted SatisfactionRating and AggregateRating are significant simultaneously. Regression five reports significant results even when we control for the lagged firm performance. Table 2-4-B repeats the same test when we drop Financial and Utility industries, as it is common in valuation, return, and performance literature.[69] Results shows no considerable change either in level of significance, or in magnitude. Adjusted R2 in both Table 2-4-A and 2-4-B is about 50%. These results are consistent with employees can continuously provide valuable information that is not influenced in the market neither by informed trades of institutions, nor by small market participants, nor by media resources. This is not employees' feeling that can be gained from the market reaction because employee information variables are significant even when we control for the firm performance and characteristics at the year employee reviews collected.

Another valuable side of this information is the fact that employee's information does not appear to be immediately incorporated in the market. Table 2-5-A shows that lagged employees' information is still valuable even after one year. It means lagged employee opinions (collected at year $(t-1)$) is predictive of firm performance after 2 years $(t+1)$. Results show employee opinions at year $(t-1)$ is significantly predictive of firm performance at year $(t+1)$ even when we control for financial variables. Table 2-5-B shows the same model when we drop utility and financial in-

[68] Firm level clustering as well.

[69] Based on Fama French 48-industry classification we drop 31, 44, 45, 46, and 47. Based on SIC code we drop 4900-4999 and 6000-6999.

dustries. The table shows no change in results. We can proceed this test one step ahead. Table D-3 in Appendix D shows that results are consistent (lagged employee opinions can predict lead performance) even if we control for firm characteristic and performance of a year ahead (time t) instead of lagged control variables.

In term of economic magnitude, 1-standard deviation higher AggregateRating is associated with 0.53 percent larger ROA in the following year[70], and 1-standard deviation higher adjusted SatisfactionRating is associated with 0.52 percent smaller ROA in the following year.

There is a concern that there could be correlations between reviews' intensity and firm's performance. For instance, poorly performing firms may or may not receive more reviews. We address this concern using a WLS regression when we use Reviews as a weight in our regressions. We use log of number of reviews as regressions weight and results are consistent with non-weighted regressions which show employee opinion predictability does not depend on number of reviews. The WLS regression results are presented in Table D-1 in Appendix D.

2.4.3 When are employees' opinions more informative?

We expect that the informativeness of employee opinions may vary depending on the different conditions and situations. Table 2-6 shows the results. In column 1 we look at firm size. Dividing the sample into two groups of larger and smaller than the median size of the whole sample, we show employee opinions are more informative in smaller firms rather than larger (more than 50% larger coefficient). One the other hand, results in column 7, where we look at the effect of "more employees' reviews", shows employee opinions are more informative when we have less reviews (almost 3 times larger coefficient). This is consistent with our expectations considering employee opinion as a source of information. Larger firms may be under more attentions in different ways (i.e. media, news, analysts and etc.). On the other hand, more reviews is associated with more outsiders' attentions and more leakage of employee information which would lead it to be less valuable for predictions. Column 2 shows employee opinions are more informative in younger firm. Again the

[70] Calculation based on standard deviation of AggregateRating (which is 1) and coefficients on AggregateRating (Table 2-4-A).
This is not a very small change since ROA's distribution in our sample is: mean: -0.039, St. Deviation: 0.24.
Using normal standardized scales.

same explanation applies for the firm age. Older firms are more likely to be larger, more likely to have more employees, and to be under more attentions from outsiders which would lead to less informativeness of such information.

Column 3 shows employee opinions are more valuable for Tech firms (more than 3 times larger coefficient). It may be related to the nature of their industries. For instance, any type of insider information about research success or failure may have a much greater impact in firms' performance predictions compared to looking at the RD expenses dollar amount in the financial statements. Column 4 shows employee opinions are more important when the last year firm performance is lower. Column 5 shows employee opinions are more valuable when the company had more volatility in the last year, and column 6 shows employee opinions are a little more predictive when the firm is located in more corrupt states. All these three findings are consistent with employee opinions being especially informative when there is greater uncertainties while more volatility, more corruption[71], and low performance can be considered as a signs of uncertainty.

2.4.4 Employees' uncertainty Vs firm's volatility

Next, we compare the divergence (uncertainty) in employees' opinions about their firm, and volatility of excess returns. Table 2-7 reports the results in three panels for monthly employees' uncertainty about their opinions measured by standard deviation of opinions. The dependent variable is the standard deviation of daily excess returns in each month. To restrict the tests we add Firm times Year fixed effect to filter out all annual financial issues that may cause volatility, State time Year fixed effect to capture all annual location-based variables that may affect both firms and market, and finally Year-Month fixed effect as a dummy for our time period. Panel A shows results for concurrent level of uncertainties in the stock market and its relation with employees' uncertainties. Result shows market uncertainty level can be seen in employees at the same month as well. The first regression shows the relation between employees' uncertainty and market uncertainty without any control variables rather than Fixed Effects explained above. In the second regression we add lagged monthly excess return as a control variable and in third regression we add lagged monthly

[71] SeeButler et al. [2009] for the measure of state level corruption

volatility measured by standard deviation of daily excess return during the last month. All these three regressions show employees' uncertainty is significantly related to the concurrent market uncertainty. Interestingly, Panel B shows employees' uncertainties can predict market volatility in next month even when we control for lagged monthly excess return and volatility. The same as what we explained above for the first three regressions, results are significant when we control for lagged excess return and volatility, but regression four's stronger result shows that employees' uncertainty remains significant even if we control for next month excess return and volatility as well. Panel C shows the predictability of employees' uncertainty would be disappeared after two month. It means that employees' uncertainty would be predictive of market uncertainty only for the next month.

Finally, we investigate the relation between "changes in firm size" and employee opinions. As shown in Table 2-8-A as well as 2-8-B, firm size, and also changes in firm size, are positively correlated with employees' AggregateRating, controlling for the firm performance as well as all other firm characteristics. Literature shows that there is negative relation between firm size and performance (see Banz [1981], Fama and French [1992], Fama and French [1993] & etc.)) [72]. In this Chapter, as explained above, controlling for all effective elements known by the performance literature, there is positive relation between employees AggregateRating and firm performance. Now, while the literature expects lower performance for larger firms, we document a bright side of the size-performance relation. Because employees' morale and their opinions about their firm would be stronger in larger firms. This will be indirectly lead to better performance for the firm.

On the other hand, there is negative relation between employees adjusted SatisfactionRating and firm size. As results show, employees' adjusted satisfaction is higher in smaller firm. This may be possible to be explained by usual expectation about larger firms' management quality. This is consistent with our Quiet-Life explanatory approach that we just used to explain the negative relation of adjusted SatisfactionRating on firm performance. Larger firms are more likely to be able to hire a better CEO and have a well-organized management team. They are also more likely to have better corporate governance and internal regulations to avoid unnecessary employee

[72] Banz [1981] uses market cap as firm size, while we use total asset. Results remain constant if we replicate the test using market cap instead of total asset.

satisfaction (like extra and unnecessary compensation or less than usual work load) to reduce extra costs. So the negative relation between adjusted SatisfactionRating and firm size is exactly what we expected to see. Again this can be a bright side of the size-performance relation.

2.4.5 Employees' textual analysis

As mentioned in data section, Glassdoor provides 9 variables which would be converted into numeric variables easily, as explained and used in all above tests. Glassdoor also provides three part of textual variable that can be subject of new tests using financial textual analysis literature. Finance literature has shown that tone of executives' in their text is informative. Following the textual analysis literature based on Bag of Words technique (look at Loughran and McDonald [2016] for literature review) tone of the text measured by percentage of negative, positive, and uncertain words in the text can be significantly related to different firm characteristics and performance. Here, we test informativeness of employees' tone. Tone of employees' text is measured by percentage of positive (negative, uncertain) words in the text. Each employee provides up to three different texts; her pros & cons about the firm, and her advice to management. We consider all these three text sections together to have a complete one person's disclosure which covers both positive and negative sides of the firm form employee's perspective. So percentage of negative (positive, uncertain) words is the number of negative (positive, uncertain) words in their text (all three sections of pros, cons, and advice together) divided by the whole number of words they have in their text (again in all three sections together). We exclude the list of "Stop Words" from whole number of words. We use Loughran & McDonald master dictionary for the lists of positive, negative, uncertain, and Stop words. Results provided in Table 2-9-A shows percentage of negative words in employees' texts is significantly related to the firm performance measured by ROA. In the first three regressions we test each percentage in employees' text, and in fourth regression we add all three together. Results are significant only for the percentage of negative words. In all first four regressions we controlled for the lagged employee opinions measured by lagged AggregateRating and lagged Adjusted SatisfactionRating. In the second part (regression 5 to 8) we repeat all four regressions, but we replace lagged employee opinion variables with concurrent AggregateRating

and Adjusted SatisfactionRating. Again, results show that percentage of negative words in the text provided by employees is negatively related to the firm performance measured by ROA, and this is on top of what we can capture using AggregateRating and SatisfactionRating.

In Table 2-9-B we repeat the same tests when we replace ROA by firm value, measured by Q-ratio. In the same pattern of regressions as we just explained for Table 2-9-A, results show percentage of negative words and also percentage of uncertain words are both negatively related to the firm value. In both tables 2-9-A and 2-9-B percentages of positive words are positively correlated, but insignificant.

Next, using the same method of texts' negative (uncertain, positive) tone evaluation, we test employees' text informativeness in prediction of market uncertainty using stocks excess return volatility in leading year. Results provided in Table 2-10 show that negative tone in employees' text is predictive of stock excess return volatility measured by the standard deviation of daily excess return in each year. Results show no significant relations between positive, and also uncertain, tones in employees' text, and future stock volatility. In the first six regressions we add different control variables, and results show no change in significance of employees' negative tone. In the seventh regression we add our two PCF variables to see if our new textual variables can provide a new piece of information that was not influenced in our previous variables. Regression seven shows employees' negative tone is still significantly predictive of stocks excess return volatility even when we add our previous employee rating variables. It means employees' text provides some sort of information that is not reflected in AggregateRating.

Next, we look at the informativeness of employees textual variables in different conditions. To do so, we define two dummies (D_accurate and D_inaccurate). D_accurate is equal one when employees' AggregateRating is accurate. It means that D_accurate is equal one when employees' AggregateRating in period $(t-1)$ is in the highest (lowest) decile of the sample, and the firm performance in period (t) is in the same decile, zero otherwise. D_inaccurate is equal one minus D_accurate. Here, our variables of interest are interaction of the D_accurate (and D_inaccurate) and our textual variables. It means intNeg1 is interaction of the percentage of negative words in the text, and D_accurate, while intNeg0 is interaction of the percentage of negative words in the text,

and D_inaccurate. The same logic applies for all others interactions. Results provided in Table 2-11 show that employees' text is just a little more valuable when employees' AggregateRating was not accurate, but it is significant in both conditions of accurate or inaccurate AggregateRating. It means that even when employees' prediction about the firms' future condition is accurate, still they have some sort of different valuable Soft information provided in their texts.

Next, we focus on employees motivations to provide textual disclosure, or provide longer and more detailed text. It means we want to see when employees write more about their firms, at least in our Glassdoor sample. We use two different variables as our variable of interest in this part. The first one is natural log of difference between the number of words provided in a year, and the number of words provided in the previous year. The second one is the growth rate in the number of words compared to the last year. For each one of these two variables we can use two different number of words. The first one is the total number of words, and the second one is the adjusted number of words in the text (which is the total number of words, while we exclude Stop words list of Luagran & McDonald). Results provided in Table 2-12-A and 2-12-B show that change in amount of text provided by employees is strongly positively associated with change in firm excess return while we control for firm and performance variables. Both tables show consistent results when we use "change" in firm characteristics or lagged "level" of firm characteristics as our control variables. Both of our variables of interest, as explained above, show consistent results about the behavior of employees in providing text because of change in firm performance.

Our 60-million word sample has a considerable potential to shed light on employees concerns. In the next part we focus on "what are employees' concerns", and what do they want to talk about. Our study focuses on words that we can clearly link to a specific employees' concern. In the first step we sort words based on number of time each one has been repeated in the text while we had excluded Stop words list of Loughran & McDonalds. Not surprisingly, some firm related, some management/manager related, some personal related, and some employee related words have been repeated frequently. Some of the frequently repeated words in our list are not meaningful by themselves like some verbs, adjectives and adverbs (It is similar what we can see in Stop word list, but the Stop list is customized for official executives' language and wording. Of course, in a causal

voluntarily disclosed text by employees we would see much more (or at least different) words to be meaningless by themselves). We then exclude those words that we could not specifically label to anyone of the employees' concern, like good, great, lot, hard, people, high, low, nice, and etc. to have only stand-alone meaningful words. Doing so we are able to construct 9 different labels for mostly repeated words in employees' text. Advantage of this method is that we have handful words in each cluster, and they are clearly related to the label and we don't need linguists' confirmations for relation between words in each cluster and its label. Results provided in Table 2-13. The cluster that has the mostly repeated words in it is "Work & Work-life balance" which covers 26.4%[73] of employees' text. This label contains 7 words[74]; work, time, hour, balance, life, flexible, and work-life. The cluster its words are the second mostly repeated is "Employee". This label covers about 13.9%[75] of the text and contains these 7 words; employee, worker, co-worker, staff, department, group, and team. The third mostly repeated cluster is "Management" which covers 12.3% of the text. This label contains these 4 words; Manager, CEO, leadership, senior. The fourth cluster is "Compensation" which covers 12% of the text. This label contain these 10 words; pay, benefit, salary, money, compensation, payroll, bonus, commission, promotion, and wage. The next cluster that we call "Company", covers 11.1% of the text and contains these 4 words; business, company, organization, and corporate. The next cluster that we call "Personal", covers about 10.7% of the text and contains these 10 words; training, vacation, experience, learn, opportunity, hire, leave, morale, health, and personal. The seventh cluster is "Location" which covers 5.5% of the text and contains these 5 words; location, room, store, office and place. The next cluster is "Culture" which covers 5% of the text and contains these 4 words; culture, environment, friendly, and atmosphere. The last cluster is "Outside" which covers 3.3% of the text and contains these 3 words; client, customer, and market.[76]

As explained above, work and work-life balance is, by far, the mostly repeated label in employees' text. One argument may be referring to the word "work" which could be used in other contexts

[73] If we do not exclude words those are not meaningful by themselves this number would be 12.5%.
[74] And their derivational words. Like their plural forms, infinitive, etc
[75] If we do not exclude words those are not meaningful by themselves this number would be 6.6%.
[76] If we do not exclude words those are not meaningful by themselves this number would be 5.8% for Management, 5% for Compensation, 5.3% for Company, 5.1% for Personal, 2.6% for Location. 2.4 for Culture, and 1.6% for Outside

rather than work-life. Excluding "work" from this cluster, still work-life balance is the greatest cluster in employees' text. This would be interesting since work-life balance is mentioned much more than CEO, management, and company in employees' text. Work-life repeated even more than other employee-related labels like compensation, culture, and personal. Of course, using Bag of Word is not a completely convincing approach to find out all employees concerns. As a future research we will study on employees' sentiment analysis using more modern approaches like ELMO to analyze employees' sentences instead of words.

2.5 Conclusion

While finance literature only considers executives as a reliable source of insider information, using Glassdoor data, we document reliability of non-executive employees' as another source of insider information in a contentious form. We find that employee opinions has valuable information in more than one dimension. While the literature believes employees sense of satisfaction is completely correlated with the firm quality (i.e. financially-better firm is a better place to work, then it would lead to more satisfied employees), we empirically show that there is more than one dimension associated with employees' opinions about the firm, e.g., employees' views about firm prospects can be completely distinct from their own satisfaction in the firm, and these two dimensions can provide different information about the company.

Our first finding is that employee opinions about the quality of the firm and management, at least in aggregate, is continuously positively related to the firm value and performance. One step ahead, we show that employee opinions about the firm quality is predictive of future firm value and performance even when we control for firm concurrent performance. Following the performance literature results are consistent when we exclude financial and utility firms.

Our second finding is that employees' adjusted satisfaction in the firm is negatively related to the firm value and performance. The same as employee opinions about the firm quality, employees' adjusted satisfaction is predictive of future firm value and performance even when we control for firm concurrent performance. Again, results are consistent even when we exclude financial and utility firms. This suggests that, controlling for firm condition, greater personal satisfaction of

employees may be a gift from poor management that come at the expense of shareholders.

Our third finding shows employees can provide different level of information in different situations. Considering employee opinions as a source of information, we expect to see employee opinion is more valuable when information is less likely to be leaked. Our results indicates that employee opinions are more valuable in smaller firms, younger firms, firms with less number of employees, and firms that have less Glassdoor reviews. Following the first chapter finding, employee' opinions are more valuable when the firm has had lower performance in the last year, possibly because these firms may be especially difficult for outsiders to be evaluated. The same explanation would be applied for firms with more volatility in the last year, and firms located in more corrupt states which would provide more uncertainty for the outsiders. Following the notion of employee reviews as a source of information, employee opinions are more informative in Tech firms. This may be reflective of firms in which human capital is more important, and employees may be better positioned to evaluate its quality than outsiders.

Our fourth finding shows the relation between dispersion in the employees' view, measured by the standard deviation of employee opinions, and stock market volatility, measured by the standard deviation of daily excess return, during each month. Our finding shows that employees' uncertainty in each month is correlated with concurrent market uncertainty, and also, in the next month, even when we control for lagged or concurrent excess return and volatility, this suggest that employee uncertainty is echoed in market uncertainty. Results show that this information (employees' uncertainty) would be fully captured by the market in two months.

Our fifth finding shows employees prefer their firms to be larger. Our results show, controlling for the firm performance as well as all other firm characteristics, there is positive relation between employee opinions about their firm, and firm size. Results also show change in firm size during a year is strongly associated with employee opinions. This is important when we take performance literature into account. Literature shows (see Banz [1981], Fama and French [1992], Fama and French [1993] etc.) strong negative association between firm size and performance. Here, while we document that employees' point of view about their firm can provide positive future firm performance, this result can shed light on the good side of the relation between size and performance.

Our last finding is related to the information available in employees' text. Following executives' textual analysis in Finance literature we test for reliability of positive, negative and uncertain tone (measured by the percentage of negative (positive, or uncertain) words in their texts) in employees' text. Results show employees' negative tone is negatively related to the firm performance measured by the ROA ratio. Results also show both employees' negative and also uncertain tones are negatively related to the firm value measured by Tobin Q ratio. We also find that employees' textual information cannot be captured using our Glassdoor non-textual variables. Our study also show negative tone in employees' texts can be predictive of long-run firm volatility. Finally, we show that "workload and work-life balance" is the main employees' concern mentioned in their text. More than 25% of employees' text is related to this concern.

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Appendix C

Table 2-1-A. Summary Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
year (review years)	10,886	2012.205	2.308	2008	2016
Reviews (number)	10,915	25.787	79.915	1	1756
overall rating	10,915	3.081	0.77	1	5
Work-life balance	10,892	3.255	0.767	1	5
culture rating	10,890	3.013	0.799	1	5
careeropprtunity rating	10,887	3.046	0.71	1	5
compensation rating	10,886	3.051	0.8	1	5
senior management rating	6,472	2.73	0.747	1	5
recommend to friend rating	10,915	0.059	0.531	-1	1
outlook rating	10,915	0.067	0.305	-1	1
COE approval	10,915	0.168	0.459	-1	1
AggregateRating (PCF variable)	10,886	5.52E-10	1	-3.377	2.993
Unadjusted satisfactionRating (PCF variable)	10,886	1.14E-09	1	-3.228	2.762
Adjusted SatisfactionRating	10,886	6.08E-10	0.515	-2.737	3.421
excess return (Annual) - percentage	10,521	3.01	0.341	-0.735	1.379
ROA	10,864	0.029	0.118	-1.339	0.274
Q ratio	9,750	2.029	1.39	0.556	13.398
Size	10,865	8.21	2.016	1.532	15.071
firm age (log)	10,886	3.156	0.657	1.099	4.543
ATO	10,864	1.006	0.795	0	4.486
Leverage	10,624	0.114	0.279	-0.741	0.9
Market Share	10,864	0.118	0.213	0	1
RD	10,886	0.047	0.118	0	3.957
AggregateRating_SD (monthly)	96,342	0.636	0.473	0	2.796
excess return_SD (monthly)	99,326	1.85	0.016	0	0.769
excess return (monthly)	99,354	0.21	0.106	-0.983	4.017
UncPer	12,201	0.013	0.008	0	0.048
NegPer	12,201	0.038	0.015	0	0.088
PosPer	12,201	0.069	0.022	0.014	0.154
Total_worlds	12,201	92.815	44.721	11.5	631.182
Total_adj_worlds	12,201	41.973	18.085	4	270.667
Total_negative	12,201	1.611	1.038	0	22
Total_positive	12,201	2.734	1.149	0	16
Total_uncertain	12,201	0.577	0.468	0	8.5
adv_unc	12,201	0.12	0.187	0	4.667
adv_neg	12,201	0.334	0.369	0	8
adv_pos	12,201	0.555	0.449	0	9.333
adv_adj_tot	12,201	9.76	5.882	0	150.667
adv_tot	12,201	22.646	14.39	0	353.333

Table 2-1-A Continued

Variable	Obs.	Mean	Std. Dev.	Min	Max
cons_unc	12,201	0.336	0.313	0	7.5
cons_neg	12,201	1.102	0.768	0	20
cons_pos	12,201	0.689	0.495	0	7
cons_adj_tot	12,201	19.22	10.717	0	230.667
cons_tot	12,201	44.059	26.348	4	512.333
pros_unc	12,201	0.121	0.18	0	4.5
pros_neg	12,201	0.174	0.241	0	7
pros_pos	12,201	1.49	0.692	0	14
pros_adj_tot	12,201	12.993	6.247	0	107
pros_tot	12,201	26.11	15.08	4.5	318

Table 2-1-B. Summary Statistics

The table provides correlations between all Glassdoor ratings.

	Overall	CEO approval	Outlook	Career opportunity	Recommend to Friend	Culture	Senior Management	Work-Life Balance	Compensation
Overall	1								
CEO approval	0.51	1							
Outlook	0.58	0.48	1						
Career opportunity	0.72	0.42	0.52	1					
Recommend to Friend	0.7	0.49	0.58	0.58	1				
Culture	0.75	0.49	0.52	0.63	0.63	1			
Senior Management	0.75	0.49	0.55	0.66	0.61	0.73	1		
Work-Life Balance	0.59	0.33	0.36	0.44	0.47	0.56	0.56	1	
Compensation	0.61	0.35	0.39	0.55	0.46	0.49	0.51	0.42	1

Table 2-1-C. Distribution of employees' Glassdoor reviews

Correlation between various employees' reviews.

	Overall	Work-Life Balance	Career Opportunity	Compensation	Culture	Senior Management	Outlook	CEO approval	Recommend To Friend
Obs.	2,145,731	1,976,384	1,959,936	1,948,541	1,966,659	1,573,575	2,145,735	2,145,735	2,145,735
Mean	3.24	3.22	3.12	3.14	3.2	2.81	0.13	0.19	0.15
Skewness	-0.3	-0.28	-0.18	-0.21	-0.24	0.073	-0.14	-0.25	-0.3
Kurtosis	2.19	2.04	2.12	2.12	1.92	1.85	2.31	2.17	1.32
1 & (1.5) star	11.32%	14.17%	13.44%	13.14%	15.78%	22.96%	-	-	-
2 & (2.5) star	15.22%	14.96%	17.64%	16.88%	15.52%	18.29%	-	-	-
3 & (3.5) star	27.81%	26.63%	29.94%	28.72%	24.41%	25.56%	-	-	-
4 & (4.5) star	29.62%	26.34%	24.90%	26.74%	24.08%	20.86%	-	-	-
5star	16.03%	17.90%	14.08%	14.52%	20.21%	12.33%	-	-	-
Positive opinion	-	-	-	-	-	-	28.78%	34.24%	48.45%
Negative opinion	-	-	-	-	-	-	15.60%	14.95%	33.38%
Neutral opinion	-	-	-	-	-	-	55.62%	50.81%	18.17%

Table 2-1-D. Summary Statistics

The table provides annual breakdown for Glassdoor reviews we used in this chapter.

IPO year	Number of Glassdoor reviews after CCM merge	Number of Glassdoor reviews before CCM merge
2008	6,922	44,807
2009	6,616	49,390
2010	10,722	89,268
2011	13,987	108,359
2012	24,430	187,848
2013	34,539	239,583
2014	50,277	376,426
2015	82,905	595,119
2016	51,066	432,236

Table 2-2-A. Univariate evidence: firm value and performance in two sub-samples of low and high employees' AggregateRating

This table presents firm performance for two sub-samples of firms with above and below median of AggregateRating and median of Adjusted SatisfactionRating, along with the T-test comparing the mean of two distributions. Panel A presents results when we divide the whole sample based on median of lagged employee opinions, while in Panel B sub-samples are defined using median of concurrent employees rating.

Panel A

VARIABLES	Above median of lagged AggregateRating	Below median of lagged AggregateRating	T test	Above median of lagged Adj. SatisfactionRating	Below median of lagged Adj. SatisfactionRating	T test
ROA	0.041	0.018	10.38	0.02	0.039	8.49
Q ratio	2.19	1.84	13.55	1.91	2.13	7.6
Excess Return	0.045	0.022	3.31	0.027	0.039	1.77

Panel B

VARIABLES	Above median of concurrent AggregateRating	Below median of concurrent AggregateRating	T test	Above median of concurrent Adj. SatisfactionRating	Below median of concurrent Adj. SatisfactionRating	T test
ROA	0.04	0.018	9.4	0.019	0.039	8.54
Q ratio	2.19	1.87	11.4	1.92	2.14	7.68
Excess return	0.048	0.014	5.01	0.014	0.049	5.2

Table 2-2-B. Employee opinion (Propensity Score Matching)

The Table reports logit regressions results for propensity score matching sample. Matchings are based on lagged size, lagged market share, lagged leverage, lagged asset turnover, lagged firm value (Q ratio), and lagged excess return, year, and industry. Here, we use Fama-French 48 for industry classifications. (Consistent results using two or three digits SIC code instead of Fama French classification). Treatment variable for the logit regression is defined as a dummy equal one if the employee opinions are in the highest three deciles employee ratings, and is equal zero if the employee opinions are in the lowest three deciles, and missing otherwise. The notion is matching similar firms based on performance and firm characteristics which have completely different employee ratings (highest Vs lowest three deciles). Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) Aggregate	(2) Overall	(3) Work-life	(4) CEO approval	(5) Outlook
Aggregate	0.0103**				
	(0.00453)				
Overall		0.0101**			
		(0.00434)			
Work-life			-0.0160***		
			(0.00435)		
CEO approval				0.0140***	
				(0.00366)	
Outlook					0.0198**
					(0.0097)
Observations	4,805	4,489	5,400	5,527	7,666

2-2-B. Continued

VARIABLES	(6) Recommend to friend	(7) Compensation	(8) Senior management	(9) Culture	(10) Career Opportunity
Recommend to friend	0.0146***				
	(0.00382)				
Compensation		-0.0137***			
		(0.00511)			
Senior management			0.00919*		
			(0.00510)		
Culture				0.00577*	
				(0.00301)	
Career Opportunity					0.00462*
					(0.00213)
Observations	4,626	4,512	3,217	4,900	4,815

Table 2-3-A. Lagged employee opinion (each employee rating individually) Vs firm performance

This table presents results when we do not use our PCF variables (AggregateRating and SatisfactionRating). We have Overall Rating in the first regression, Outlook rating in 2^{nd} , CEO approval in the 3^{rd}, Recommend to Friend in 4^{th}, senior management rating in 5^{th}, Culture in 6^{th}, career opportunity rating in 7^{th}, compensation rating in 8^{th}, and work-life balance in 9^{th} regressions. Each regression shows informativeness of each one of employees' reviews. In all regressions bellow the dependent variable is ROA at time (t) while we used lagged $(t-1)$ employee opinions as our variables of concern, and we control for the lagged firm performance as well as other firm characteristics. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level. Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) Overall	(2) Outlook	(3) CEO Approval	(4) Recommend to Friend	(5) Senior Management
overall_lag1	0.00408***				
	(0.00123)				
outlook_lag1		0.0363***			
		(0.00391)			
ceoappr_lag1			0.0100***		
			(0.00247)		
recom_lag1				0.00629***	
				(0.00184)	
snr_mgmt_lag1					0.00518***
					(0.00179)
sizelag1	-0.0459***	-0.0490***	-0.0458***	-0.0459***	-0.0274*
	(0.0106)	(0.0110)	(0.0105)	(0.0106)	(0.0139)
leveragelag1	-0.00709	-0.00457	-0.00696	-0.00692	-0.00620
	(0.0131)	(0.0128)	(0.0132)	(0.0131)	(0.0182)
marketSharelag1	0.0391	0.0384	0.0400	0.0386	0.0415
	(0.0308)	(0.0301)	(0.0312)	(0.0308)	(0.0248)
ATOlag1	0.0523***	0.0504***	0.0522***	0.0522***	0.0463***
	(0.00843)	(0.00856)	(0.00841)	(0.00845)	(0.0140)
ROAlag1	0.107***	0.104***	0.106***	0.107***	-0.0386
	(0.0301)	(0.0282)	(0.0304)	(0.0300)	(0.0661)
RDlag1	-0.0222	-0.0234	-0.0232	-0.0230	-0.0727
	(0.0221)	(0.0212)	(0.0226)	(0.0223)	(0.0950)
Firm FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y
Observations	8,988	8,988	8,988	8,988	5,290
R-squared	0.582	0.588	0.583	0.582	0.696

Table 2-3-A. Continued

VARIABLES	(6) Culture	(7) Career Opportunity	(8) Compensation	(9) Work-life
culture_lag1	0.00340***			
	(0.00102)			
careeroppr_lag1		0.00494***		
		(0.00133)		
comp_lag1			0.00287*	
			(0.00167)	
worklife_lag1				0.00300**
				(0.00129)
sizelag1	-0.0460***	-0.0466***	-0.0460***	-0.0459***
	(0.0105)	(0.0105)	(0.0107)	(0.0106)
leveragelag1	-0.00700	-0.00626	-0.00708	-0.00701
	(0.0131)	(0.0131)	(0.0129)	(0.0132)
marketSharelag1	0.0390	0.0399	0.0398	0.0388
	(0.0307)	(0.0310)	(0.0306)	(0.0308)
ATOlag1	0.0524***	0.0518***	0.0528***	0.0524***
	(0.00841)	(0.00842)	(0.00838)	(0.00841)
ROAlag1	0.107***	0.107***	0.108***	0.108***
	(0.0304)	(0.0304)	(0.0301)	(0.0305)
RDlag1	-0.0222	-0.0222	-0.0273	-0.0221
	(0.0224)	(0.0216)	(0.0267)	(0.0226)
Firm FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
State FE	Y	Y	Y	Y
Observations	8,969	8,967	8,965	8,971
R-squared	0.582	0.582	0.582	0.582

Table 2-3-B. Concurrent employee opinion (each employee rating individually) Vs firm performance

This table presents results when we do not use our PCF variables (AggregateRating and SatisfactionRating). We have Overall Rating in the first regression, Outlook rating in 2nd , CEO approval in the 3rd, Recommend to Friend in 4th, senior management rating in 5th, Culture in 6th, career opportunity rating in 7th, compensation rating in 8th, and work-life balance in 9th regressions. Each regression shows informativeness of each one of employees' reviews. In all regressions bellow the dependent variable is ROA at time (t) and we use concurrent employee opinions as our variables of concern along with lagged firm performance as well as other firm characteristics. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level. Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) Overall	(2) Outlook	(3) CEO Approval	(4) Recommend to Friend	(5) Senior Management
Overall	0.00566***				
	(0.00150)				
Outlook		0.0331***			
		(0.00418)			
CEO Approval			0.0122***		
			(0.00437)		
Recommend to Friend				0.00856***	
				(0.00211)	
Senior Management					0.00353*
					(0.00192)
ROAlag1	0.116***	0.115***	0.117***	0.115***	-0.0437
	(0.0256)	(0.0251)	(0.0252)	(0.0260)	(0.0512)
sizelag1	-0.0508***	-0.0535***	-0.0503***	-0.0507***	-0.0273**
	(0.00892)	(0.00934)	(0.00889)	(0.00888)	(0.0121)
leveragelag1	0.00986	0.0129	0.00979	0.00965	-0.0196
	(0.0140)	(0.0140)	(0.0138)	(0.0140)	(0.0171)
marketSharelag1	0.0370	0.0374	0.0369	0.0357	0.0413
	(0.0360)	(0.0353)	(0.0362)	(0.0358)	(0.0256)
ATOlag1	0.0496***	0.0481***	0.0499***	0.0496***	0.0521***
	(0.00847)	(0.00833)	(0.00850)	(0.00849)	(0.0135)
RDlag1	-0.0317	-0.0311	-0.0337	-0.0318	-0.112***
	(0.0252)	(0.0223)	(0.0262)	(0.0245)	(0.0369)
Firm FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y
Observations	9,186	9,186	9,186	9,186	5,371
R-squared	0.592	0.596	0.593	0.592	0.708

Table 2-3-B. Continued

VARIABLES	(6) Culture	(7) Career Opportunity	(8) Compensation	(9) Work-life
culture	0.00447***			
	(0.00146)			
careeroppr		0.00530***		
		(0.00105)		
comp			0.00303*	
			(0.00153)	
worklife				0.000873
				(0.00156)
ROAlag1	0.116***	0.117***	0.117***	0.117***
	(0.0251)	(0.0251)	(0.0251)	(0.0248)
sizelag1	-0.0514***	-0.0518***	-0.0511***	-0.0514***
	(0.00872)	(0.00869)	(0.00869)	(0.00874)
leveragelag1	0.0110	0.0109	0.0102	0.0104
	(0.0140)	(0.0139)	(0.0139)	(0.0140)
marketSharelag1	0.0381	0.0378	0.0374	0.0372
	(0.0360)	(0.0357)	(0.0355)	(0.0355)
ATOlag1	0.0490***	0.0486***	0.0493***	0.0489***
	(0.00840)	(0.00841)	(0.00847)	(0.00844)
RDlag1	-0.0320	-0.0338	-0.0318	-0.0331
	(0.0244)	(0.0244)	(0.0257)	(0.0254)
Firm FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
State FE	Y	Y	Y	Y
Observations	9,160	9,158	9,157	9,162
R-squared	0.594	0.594	0.593	0.593

Table 2-4-A. Lagged employee opinion (PCF variables) Vs firm performance

This table presents results when we use our PCF variables. We report results for AggregateRating in 1st, Unadjusted SatisfactionRating in 2nd, and Adjusted SatisfactionRating in 3rd regression. In 4th regression we use both AggregateRating and Adjusted SatisfactionRating simultaneously. In the last regression we control for lagged ROA as well (firm performance at the time employee opinion collected). In all regressions bellow the dependent variable is ROA at time (t) while we used lagged $(t-1)$ employee opinions as our variables of concern, and we control for the firm performance as well as other firm characteristics at the same time we collect employees' reviews. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level. Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) AggregateRating	(2) SatisfactionRating	(3) Adjusted SatisfactionRating	(4) Both	(5) Both
sizelag1	-0.0427***	-0.0423***	-0.0431***	-0.0432***	-0.0469***
	(0.0109)	(0.0110)	(0.0109)	(0.0110)	(0.0108)
leveragelag1	-0.0233*	-0.0239*	-0.0225*	-0.0223*	-0.00572
	(0.0126)	(0.0126)	(0.0128)	(0.0126)	(0.0129)
marketSharelag1	0.0371	0.0366	0.0352	0.0365	0.0395
	(0.0320)	(0.0319)	(0.0318)	(0.0318)	(0.0308)
ATOlag1	0.0547***	0.0551***	0.0541***	0.0541***	0.0517***
	(0.00837)	(0.00828)	(0.00817)	(0.00825)	(0.00835)
RDlag1	-0.0497*	-0.0491*	-0.0509*	-0.0509*	-0.0293
	(0.0283)	(0.0282)	(0.0258)	(0.0273)	(0.0262)
ROAlag1					0.107***
					(0.0293)
AggregateRating_lag1	0.00549***			0.00548***	0.00525***
	(0.00107)			(0.00107)	(0.00107)
Unadjusted Satisfaction_lag1		0.00283**			
		(0.00124)			
Adjusted Satisfaction_lag1			-0.00537**	-0.00532**	-0.00523**
			(0.00245)	(0.00244)	(0.00251)
Firm FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y
Observations	8,965	8,965	8,965	8,965	8,965
R-squared	0.579	0.578	0.578	0.579	0.583
Adjusted R-squared	0.487	0.486	0.486	0.487	0.492

Table 2-4-B. Lagged employee Opinion (PCF variables) Vs firm performance (Financial and Utility Firms excluded)

This table presents the same results as Table 2-4-A while we exclude Financial and Utility firms from the sample. We report results for AggregateRating in 1st, Unadjusted SatisfactionRating in 2nd, and Adjusted SatisfactionRating in 3rd regression. In 4th regression we use both AggregateRating and Adjusted SatisfactionRating simultaneously. In the last regression we control for lagged ROA as well (firm performance at the time employee opinion collected). In all regressions bellow the dependent variable is ROA at time (t) while we used lagged ($t-1$) employee opinions as our variables of concern, and we control for the firm performance as well as other firm characteristics at the same time we collect employees' reviews. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level. Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) AggregateRating	(2) Unadjusted SatisfactionRating	(3) Adjusted SatisfactionRating	(4) Both	(5) Both
sizelag1	-0.0458***	-0.0453***	-0.0462***	-0.0463***	-0.0504***
	(0.0113)	(0.0114)	(0.0113)	(0.0113)	(0.0110)
leveragelag1	-0.0249*	-0.0256*	-0.0245*	-0.0242*	-0.00784
	(0.0136)	(0.0136)	(0.0138)	(0.0137)	(0.0139)
marketSharelag1	0.0427	0.0426	0.0407	0.0420	0.0458
	(0.0340)	(0.0340)	(0.0339)	(0.0339)	(0.0327)
ATOlag1	0.0532***	0.0536***	0.0527***	0.0526***	0.0498***
	(0.00846)	(0.00841)	(0.00838)	(0.00839)	(0.00831)
RDlag1	-0.0501*	-0.0494*	-0.0512*	-0.0512*	-0.0312
	(0.0284)	(0.0284)	(0.0258)	(0.0274)	(0.0269)
ROAlag1					0.101***
					(0.0308)
AggregateRating_lag1	0.00597***			0.00598***	0.00576***
	(0.00122)			(0.00122)	(0.00124)
Unadj. Satisfaction_lag1		0.00329**			
		(0.00129)			
Adj. Satisfaction_lag1			-0.00504**	-0.00507**	-0.00499**
			(0.00241)	(0.00239)	(0.00246)
Firm FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y
Utility & Financial Industry	Exc.	Exc.	Exc.	Exc.	Exc.
Observations	7,616	7,616	7,616	7,616	7,616
R-squared	0.580	0.579	0.578	0.580	0.584

Table 2-5-A. Lagged employee Opinion (PCF variables) Vs Lead firm performance

This table presents results when we extend forecast horizon of our employee variables. Our variables of concern are lagged AggregateRating and lagged SatisfactionRating [both collected at $(t-1)$], while the dependent variable is lead firm performance at $(t+1)$. We report results for AggregateRating in 1st, Unadjusted SatisfactionRating in 2nd, and adjusted SatisfactionRating in 3rd regressions. In 4th regression we use both AggregateRating and Adjusted SatisfactionRating simultaneously. In the 5th regression we control for lagged ROA (which is firm performance at the time employee opinion collected), and finally in the last regression we control for ROA at time (t) (firm performance one period ahead of the time we collected employee reviews). In all regressions bellow the dependent variable is ROA at time $(t+1)$ while we used lagged $(t-1)$ employee opinions. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) AggregateRating	(2) Unadjusted SatisfactionRating	(3) Adjusted SatisfactionRating	(4) Both	(5) Both	(6) Both
sizelag1	-0.0288***	-0.0286***	-0.0291***	-0.0292***	-0.0287***	-0.0254***
	(0.00623)	(0.00616)	(0.00612)	(0.00619)	(0.00595)	(0.00592)
leveragelag1	0.00805	0.00779	0.00859	0.00871	0.00653	0.00919
	(0.00932)	(0.00936)	(0.00964)	(0.00957)	(0.00914)	(0.00907)
marketSharelag1	-0.00964	-0.00954	-0.0101	-0.0101	-0.0107	-0.0133
	(0.0251)	(0.0252)	(0.0251)	(0.0251)	(0.0251)	(0.0232)
ATOlag1	0.0212**	0.0214**	0.0207**	0.0206**	0.0210**	0.0162*
	(0.00842)	(0.00843)	(0.00848)	(0.00849)	(0.00846)	(0.00825)
RDlag1	0.0583***	0.0583***	0.0562***	0.0568***	0.0536***	0.0608***
	(0.0188)	(0.0189)	(0.0183)	(0.0184)	(0.0191)	(0.0171)
ROAlag1					-0.0140	
					(0.0198)	
ROA						0.0758***
						(0.0276)
Aggregate_lag1	0.00293**			0.00294**	0.00297**	0.00264**
	(0.00114)			(0.00113)	(0.00114)	(0.00114)
Satisfaction_lag1		0.00113				
		(0.00117)				
Adj. Satisfaction_lag1			-0.00399**	-0.00401**	-0.00403**	-0.00360**
			(0.00178)	(0.00178)	(0.00178)	(0.00175)
Firm FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y	Y
Observations	8,082	8,082	8,082	8,082	8,082	8,082
R-squared	0.637	0.637	0.637	0.638	0.638	0.640

Table 2-5-B. Lagged employee opinion (PCF variables) Vs lead firm performance
(Financial and Utility Firms excluded)

This table presents the same results as Table 2-5-A while we exclude financial and utility firms. Our variables of concern are lagged AggregateRating and lagged SatisfactionRating [both collected at $(t-1)$] as our employee opinions, while the dependent variable is lead firm performance at $(t+1)$. We report results for AggregateRating in 1st, Unadjusted SatisfactionRating in 2nd, and Adjusted SatisfactionRating in 3rd regressions. In 4th regression we use both AggregateRating and Adjusted SatisfactionRating simultaneously, and in the 5th regression we control for lagged ROA (which is firm performance at the time employee opinion collected). In all regressions bellow the dependent variable is ROA at time $(t+1)$ while we used lagged $(t-1)$ employee opinions as our variables of concern. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) AggregateRating	(2) Unadjusted SatisfactionRating	(3) Adjusted SatisfactionRating	(4) Both	(5) Both
sizelag1	-0.0324***	-0.0322***	-0.0329***	-0.0329***	-0.0321***
	(0.00655)	(0.00646)	(0.00640)	(0.00649)	(0.00618)
leveragelag1	0.0108	0.0105	0.0112	0.0114	0.00820
	(0.00967)	(0.00971)	(0.00997)	(0.00988)	(0.00929)
marketSharelag1	-0.00935	-0.00900	-0.00979	-0.0100	-0.0112
	(0.0309)	(0.0310)	(0.0308)	(0.0307)	(0.0307)
ATOlag1	0.0204**	0.0206**	0.0199**	0.0198**	0.0204**
	(0.00865)	(0.00866)	(0.00867)	(0.00868)	(0.00864)
RDlag1	0.0580***	0.0581***	0.0557***	0.0563***	0.0518**
	(0.0188)	(0.0189)	(0.0183)	(0.0184)	(0.0196)
ROAlag1					-0.0199
					(.0237)
AggregateRating_lag1	0.00317**			0.00319**	0.00324**
	(0.00137)			(0.00136)	(0.00137)
Satisfaction_lag1		0.00117			
		(0.00137)			
Adj. Satisfaction_lag1			-0.00442**	-0.00447**	-0.00450**
			(0.00190)	(0.00191)	(0.00191)
Firm FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y
Utillity & Financial industry	Exc.	Exc.	Exc.	Exc.	Exc.
Observations	6,829	6,829	6,829	6,829	6,829
R-squared	0.636	0.635	0.636	0.636	0.636

Table 2-6. Different employee opinions value in different conditions

This table shows when employee opinions are more valuable. In all seven regressions below the dependent variable is concurrent firm performance measured by ROA. Variables of concern are AggregateInteract1 (and AggregateInteract2) which is interaction of employees' AggregateRating at time $(t-1)$ and DL dummy (DH dummy). DH equals one when the variable (size, age, Tech, ROA, Volatility, Corruption, and number of reviews) is higher than median of the sample, vice versa for DL=1. Employee opinion is more important in smaller firms, younger firms, Tech industry, lower ROA, More Volatile firms, more corrupt states, when we have less reviews. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) Size	(2) Age	(3) Tech	(4) LagROA	(5) Volatility	(6) Corruption	(7) Number of Reviews
AggregateInteract.1	0.00676***	0.00669***	0.00377***	0.00734***	0.00239***	0.00504***	0.0123***
	(0.00197)	(0.00184)	(0.00128)	(0.00269)	(0.000777)	(0.00146)	(0.00233)
AggregateInteract.2	0.00440***	0.00357**	0.0114***	0.00405***	0.00763***	0.00534***	0.00417**
	(0.00117)	(0.00134)	(0.00394)	(0.000784)	(0.00179)	(0.00163)	(0.00159)
ROAlag1	0.107***	0.108***	0.108***	0.106***	0.107***	0.108***	0.107***
	(0.0293)	(0.0294)	(0.0291)	(0.0287)	(0.0291)	(0.0300)	(0.0295)
sizelag1	-0.0464***	-0.0467***	-0.0466***	-0.0464***	-0.0461***	-0.0471***	-0.0473***
	(0.0106)	(0.0107)	(0.0107)	(0.0107)	(0.0106)	(0.0108)	(0.0110)
leveragelag1	-0.00670	-0.00657	-0.00670	-0.00678	-0.00654	-0.00416	-0.00610
	(0.0128)	(0.0129)	(0.0130)	(0.0128)	(0.0129)	(0.0134)	(0.0129)
marketSharelag1	0.0399	0.0399	0.0404	0.0393	0.0398	0.0384	0.0434
	(0.0309)	(0.0310)	(0.0309)	(0.0313)	(0.0307)	(0.0314)	(0.0315)
ATOlag1	0.0524***	0.0522***	0.0522***	0.0524***	0.0527***	0.0532***	0.0519***
	(0.00851)	(0.00853)	(0.00834)	(0.00847)	(0.00847)	(0.00849)	(0.00842)
RDlag1	-0.0286	-0.0287	-0.0284	-0.0284	-0.0292	-0.0276	-0.0272
	(0.0274)	(0.0274)	(0.0269)	(0.0276)	(0.0273)	(0.0274)	(0.0272)
Firm FE	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y	Y	Y
Observations	8,965	8,965	8,965	8,965	8,965	8,731	8,965
R-squared	0.583	0.583	0.583	0.583	0.583	0.585	0.584

Table 2-7. Employees' Uncertainty Vs Stock Volatility

This table shows the relation between monthly "employees' uncertainty", and "market uncertainty". The dependent variable is daily volatility of excess return in each month measured by the standard deviation of daily excess return. (While the excess return is daily holing period return minus value weighted market return both from CRSP.) Panel A presents the concurrent relation between employees' and market uncertainties. Panel B shows the relation between employees uncertainty and next month market uncertainties, while Panel C provides results for the relation between employees' uncertainty and two months ahead market uncertainty. In each panel the first regression has no control variable other than firm times year, state times year fixed effects (to capture all firm-related and location-related issues) along with year-month fixed effect. In the second regression we show lagged month excess return, and finally in the third regressions we add lagged market volatility as well. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

Panel A

VARIABLES	(1)	(2)	(3)
Aggregate_SD (t)	0.00847**	0.00763**	0.00762**
	(0.00346)	(0.00358)	(0.00359)
Monthly ExcessReturn_lag1		-0.0613***	-0.0609***
		(0.00565)	(0.00585)
exretSD_lag1			-0.00791
			(0.0174)
Firm-Year FE	Y	Y	Y
State-Year FE	Y	Y	Y
Year-Month FE	Y	Y	Y
Observations	60,059	59,952	59,945
R-squared	0.616	0.619	0.619

Panel B

VARIABLES	(1)	(2)	(3)	(4)
Aggregate_SD (t)	0.0107***	0.0102***	0.0103***	0.0100***
	(0.00344)	(0.00347)	(0.00347)	(0.00347)
Monthly ExcessReturn		-0.0724***	-0.0716***	-0.0748***
		(0.00678)	(0.00642)	(0.00679)
exretSD			-0.0104	-0.0160
			(0.0226)	(0.0228)
Monthly ExcessReturn_lag1				-0.0405***
				(0.00861)
exretSD_lag1				-0.0139
				(0.0142)
Firm-Year FE	Y	Y	Y	Y
State-Year FE	Y	Y	Y	Y
Year-Month FE	Y	Y	Y	Y
Observations	60,028	60,028	60,024	59,910
R-squared	0.615	0.620	0.620	0.621

Table 2-7. Continued

Panel C

VARIABLES	(1)	(2)	(3)	(4)
Aggregate_SD (t)	0.00217	0.00315	0.00302	0.00273
	(0.00285)	(0.00280)	(0.00282)	(0.00279)
Monthly ExcessReturn_lead1		-0.0638***	-0.0651***	-0.0675***
		(0.00599)	(0.00620)	(0.00637)
exretSD_lead1			0.0156	0.0114
			(0.0114)	(0.0119)
Monthly ExcessReturn				-0.0321***
				(0.00675)
exretSD				0.00105
				(0.0160)
Firm-Year FE	Y	Y	Y	Y
State-Year FE	Y	Y	Y	Y
Year-Month FE	Y	Y	Y	Y
Observations	59,969	59,969	59,969	59,965
R-squared	0.632	0.636	0.636	0.637

Table 2-8-A. Employee opinion (PCF variables) Vs firm size

This table presents the relation between employees' opinions and firm size while we control for the lagged firm characteristics. Here we use firm Size as the dependent variable. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) Size	(2) Size	(3) Size
sizelag1	0.730***	0.728***	0.728***
	(0.0191)	(0.0189)	(0.0187)
ROAlag1	0.196***	0.193***	0.191***
	(0.0470)	(0.0455)	(0.0468)
leveragelag1	-0.0664**	-0.0632**	-0.0632**
	(0.0266)	(0.0262)	(0.0263)
ATOlag1	0.0620**	0.0610**	0.0610**
	(0.0245)	(0.0246)	(0.0242)
marketSharelag1	0.101	0.0975	0.0992
	(0.0722)	(0.0714)	(0.0718)
RDlag1	0.0302	0.0279	0.0289
	(0.0549)	(0.0530)	(0.0525)
AggregateRating	0.0102***		0.0102***
	(0.00224)		(0.00216)
Adjusted SatisfactionRating		-0.0191***	-0.0192***
		(0.00438)	(0.00436)
Firm FE	Y	Y	Y
Year FE	Y	Y	Y
State FE	Y	Y	Y
Observations	9,158	9,158	9,158
R-squared	0.992	0.992	0.992

Table 2-8-B. Employee Opinion (PCF variables) Vs change in firm size

This table presents the relation between employees' PCF variables and Changes in firm size while we control for the lagged firm characteristics. Here we use change in firm size in a year compared to the last year size as the dependent variable. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
ROAlag1	0.121**	0.119**	0.117**	0.196***	0.193***	0.191***
	(0.0560)	(0.0546)	(0.0560)	(0.0470)	(0.0455)	(0.0468)
leveragelag1	-0.217***	-0.215***	-0.216***	-0.0664**	-0.0632**	-0.0632**
	(0.0299)	(0.0298)	(0.0299)	(0.0266)	(0.0262)	(0.0263)
ATOlag1	0.223***	0.223***	0.223***	0.0620**	0.0610**	0.0610**
	(0.0218)	(0.0217)	(0.0218)	(0.0245)	(0.0246)	(0.0242)
marketSharelag1	-0.231***	-0.236***	-0.234***	0.101	0.0975	0.0992
	(0.0831)	(0.0823)	(0.0830)	(0.0722)	(0.0714)	(0.0718)
RDlag1	0.108*	0.106*	0.107*	0.0302	0.0279	0.0289
	(0.0593)	(0.0580)	(0.0588)	(0.0549)	(0.0530)	(0.0525)
sizelag1				-0.270***	-0.272***	-0.272***
				(0.0191)	(0.0189)	(0.0187)
AggregateRating	0.00988***		0.00989***	0.0102***		0.0102***
	(0.00267)		(0.00260)	(0.00224)		(0.00216)
Adjusted SatisfactionRating		-0.0148***	-0.0148***		-0.0191***	-0.0192***
		(0.00434)	(0.00434)		(0.00438)	(0.00436)
Firm FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y	Y
Observations	9,158	9,158	9,158	9,158	9,158	9,158
R-squared	0.364	0.363	0.365	0.427	0.427	0.428

Table 2-9-A. Employees' textual variables Vs firm performance

This table presents the relation between employees' textual variables and firm performance while we control for lagged firm characteristics. Here the dependent variable is firm's ROA ratio. We also add our AggregateRating and SatisfactionRating to the regressions to see if our textual variables are still informative in presence of numeric employees' opinions variables. In Panel A we control for lagged, and in Panel B we control for concurrent employees AggregateRating and SatisfactionRating. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

Panel A

VARIABLES	(1) Uncertainty	(2) Negative	(3) Positive	(4) ALL
ROALag	0.132***	0.131***	0.131***	0.131***
	(0.0312)	(0.0314)	(0.0315)	(0.0315)
sizeLag	-0.0662***	-0.0659***	-0.0660***	-0.0658***
	(0.0124)	(0.0124)	(0.0124)	(0.0123)
LeverageLag	0.0982***	0.0988***	0.0983***	0.0989***
	(0.0174)	(0.0174)	(0.0174)	(0.0175)
marketShareLag	0.0741**	0.0756**	0.0740**	0.0753**
	(0.0306)	(0.0309)	(0.0306)	(0.0305)
RDlag	-0.0417	-0.0430	-0.0418	-0.0432
	(0.0296)	(0.0297)	(0.0299)	(0.0302)
AggregateRating_lag	0.00501***	0.00439***	0.00479***	0.00430***
	(0.00117)	(0.00112)	(0.00114)	(0.00109)
Adj.SatisfactionRating_lag	-0.00571**	-0.00561**	-0.00571**	-0.00557**
	(0.00255)	(0.00254)	(0.00259)	(0.00250)
Uncertainty_Per	-0.0630			-0.0721
	(0.151)			(0.156)
Negative_Per		-0.297***		-0.292***
		(0.0879)		(0.0901)
Positive_Per			0.0578	0.0341
			(0.0604)	(0.0631)
Year FE	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
State-Year FE	Y	Y	Y	Y
Observations	9,050	9,050	9,050	9,050
R-squared	0.604	0.605	0.604	0.605

Table 2-9-A. Continued

Panel B

VARIABLES	(5) Uncertainty	(6) Negative	(7) Positive	(8) ALL
ROALag	0.135***	0.134***	0.135***	0.134***
	(0.0267)	(0.0272)	(0.0269)	(0.0274)
sizeLag	-0.0673***	-0.0673***	-0.0673***	-0.0671***
	(0.00881)	(0.00892)	(0.00891)	(0.00882)
LeverageLag	0.120***	0.120***	0.120***	0.120***
	(0.0199)	(0.0196)	(0.0197)	(0.0196)
marketShareLag	0.0679**	0.0697**	0.0682**	0.0697**
	(0.0334)	(0.0332)	(0.0333)	(0.0335)
RDlag	-0.0461*	-0.0458*	-0.0455*	-0.0460*
	(0.0252)	(0.0235)	(0.0252)	(0.0239)
AggregateRating	0.00538***	0.00456***	0.00492***	0.00443***
	(0.00124)	(0.00119)	(0.00115)	(0.00114)
Adj.SatisfactionRating	-0.00914***	-0.00901***	-0.00905***	-0.00899***
	(0.00256)	(0.00256)	(0.00252)	(0.00250)
Uncertainty_Per	-0.186			-0.197
	(0.157)			(0.164)
Negative_Per		-0.366***		-0.356***
		(0.0993)		(0.0958)
Positive_Per			0.0893	0.0585
			(0.0985)	(0.0994)
Year FE	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
State-Year FE	Y	Y	Y	Y
Observations	9,234	9,234	9,234	9,234
R-squared	0.617	0.618	0.617	0.618

Table 2-9-B. Employees' textual variables Vs firm Value

This table presents the relation between employees' textual variables and firm value while we control for lagged firm characteristics. Here, the dependent variable is firm's Q ratio. We also add our AggregateRating and SatisfactionRating to the regressions to see if our textual variables are still informative in presence of numeric employees' opinions variables. In Panel A we control for lagged, and in Panel B we control for concurrent employees AggregateRating and SatisfactionRating. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

Panel A

VARIABLES	(1) Uncertainty	(2) Negative	(3) Positive	(4) ALL
Qlag	0.373***	0.373***	0.374***	0.373***
	(0.0608)	(0.0607)	(0.0607)	(0.0608)
Sizelag	-0.279***	-0.279***	-0.279***	-0.278***
	(0.0699)	(0.0703)	(0.0703)	(0.0704)
leverage1lag	0.250***	0.251***	0.250***	0.252***
	(0.0879)	(0.0883)	(0.0885)	(0.0881)
marketSharelag	0.0901	0.0976	0.0927	0.0938
	(0.117)	(0.116)	(0.117)	(0.116)
RDlag	-0.303	-0.304	-0.300	-0.308
	(0.777)	(0.778)	(0.778)	(0.775)
AggregateRating _lag	0.0360***	0.0339***	0.0350***	0.0337***
	(0.00675)	(0.00640)	(0.00672)	(0.00645)
Adj. SatisfactionRating_lag	-0.00649	-0.00686	-0.00712	-0.00607
	(0.0157)	(0.0158)	(0.0159)	(0.0156)
Uncertainty_Per	-1.901*			-1.922*
	(1.033)			(1.045)
Negative_Per		-0.920*		-0.897
		(0.524)		(0.539)
Positive_Per			0.194	0.141
			(0.303)	(0.310)
Year FE	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
State-Year FE	Y	Y	Y	Y
Observations	8,390	8,390	8,390	8,390
R-squared	0.864	0.864	0.864	0.864

Table 2-9-B. Continued

Panel B

VARIABLES	(5) Uncertainty	(6) Negative	(7) Positive	(8) ALL
Qlag	0.372***	0.372***	0.372***	0.372***
	(0.0535)	(0.0532)	(0.0536)	(0.0532)
Sizelag	-0.283***	-0.285***	-0.285***	-0.283***
	(0.0483)	(0.0487)	(0.0484)	(0.0484)
leverage1lag	0.220**	0.218**	0.218**	0.220**
	(0.101)	(0.101)	(0.102)	(0.101)
marketSharelag	0.180	0.189	0.183	0.185
	(0.171)	(0.170)	(0.171)	(0.171)
RDlag	-0.555	-0.550	-0.551	-0.555
	(0.593)	(0.600)	(0.595)	(0.599)
AggregateRating _lag				
Adj. SatisfactionRating_lag				
AggregateRating	0.0204***	0.0171***	0.0199***	0.0195***
	(0.00559)	(0.00604)	(0.00615)	(0.00599)
Adj. SatisfactionRating	-0.0414***	-0.0409***	-0.0415***	-0.0414***
	(0.0113)	(0.0112)	(0.0111)	(0.0113)
Uncertainty_Per	-2.596***			-2.585***
	(0.808)			(0.817)
Negative_Per		-0.956*		-1.026*
		(0.558)		(0.562)
Positive_Per			-0.227	-0.293
			(0.257)	(0.256)
Year FE	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
State-Year FE	Y	Y	Y	Y
Observations	8,556	8,556	8,556	8,556
R-squared	0.866	0.866	0.866	0.866

Table 2-10. Employees textual variables predictability for excess return volatility

This table presents the relation between employees' textual variables and future stock volatility. The dependent variable in all regressions bellow is stock volatility (measured by the standard deviation of daily stock excess return in each year) at two period ahead of our variables of concern (Negative, positive, uncertain tone in employees text) to show textual variable predictability in a long horizon of two years. In the 1st, 2nd, and 3rd regression we test for each textual variables individually, while we have no control variables other than Fixed Effects. We add lead size, leverage, MarketShare, R&D, Volatility, Excess Return, and Asset Turn Over to the 4th regress. Keeping all control variables of the 4th regression, we add lead Q ratio in the 5th regression. Keeping all control variables of the 5th regression we add lead ROA ratio to the 6th regression. Keeping all control variables we finally add AggregateRating and SatisfactionRating to 7th regression to see if our textual variables are still informative in presence of employees' opinions variables. All regressions are firm, year, and state fixed effect. Standard errors are clustered at both firm and state levels. Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) Negative	(2) Positive	(3) Uncertain	(4) All three	(5) All three	(6) All three	(7) All Five
NegPer	0.0144**			0.0172***	0.0162**	0.0169***	0.0163**
	(0.00606)			(0.00632)	(0.00627)	(0.00600)	(0.00669)
UncPer			0.00120	0.00486	0.00836	0.00656	-0.000260
			(0.0100)	(0.00993)	(0.00992)	(0.00984)	(0.0143)
PosPer		-0.00284		-0.000679	-0.000900	-0.000643	-0.00133
		(0.00331)		(0.00325)	(0.00336)	(0.00343)	(0.00418)
AggregateRating							-8.84e-05
							(0.000112)
Adjusted SatisfactionRating							0.000499**
							(0.000217)
Control Variable	N	N	N	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y	Y	Y
Observations	7,406	7,406	7,406	6,872	6,496	6,496	5,617
Number of Firms	1266	1266	1266	1266	1266	1266	1266
Adjusted R-squared	0.674	0.673	0.673	0.688	0.686	0.690	0.688
R-squared	0.739	0.739	0.739	0.753	0.752	0.756	0.761

Table 2-11. Employees text informativeness in different situations

This table presents the employees' textual variables validity when employees lagged AggregateRating was/was not accurate. To do so, we define two dummies (D_accurate and D_inaccurate). D_accurate is equal one when employees' numeric rating variable (AggregateRating) is accurate. It means that the dummy is equal one when employees' AggregateRating in period $(t-1)$ is in the highest (lowest) decile of the sample, and the firm performance in period (t) is in the same decile, zero otherwise. D_inaccurate is equal one minus D_accurate. Here, our variables of interest are interaction of the D_accurate (and D_inaccurate) and our textual variables. It means intNeg1 is interaction of the percentage of negative words in the text, and the D_accurate, while intNeg0 is interaction of the percentage of negative words in the text, and the D_inaccurate. The same logic applies for all others as well. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
intNeg1	-0.358**	-0.295**				
	(0.160)	(0.121)				
intNeg0	-0.367***	-0.298***				
	(0.0969)	(0.0877)				
intUnc1			0.0708	0.0806		
			(0.235)	(0.279)		
intUnc0			-0.219	-0.0781		
			(0.167)	(0.150)		
intPos1					0.0585	0.0494
					(0.113)	(0.0776)
intPos0					0.0923	0.0583
					(0.0981)	(0.0602)
AggregateRating	0.00456***		0.00537***		0.00493***	
	(0.00119)		(0.00123)		(0.00115)	
Adjusted	-0.00901***		-0.00908***		-0.00908***	
SatisfactionRating	(0.00256)		(0.00254)		(0.00251)	
AggregateRating_lag1		0.00439***		0.00500***		0.00480***
		(0.00112)		(0.00117)		(0.00114)
Adjusted		-0.00561**		-0.00575**		-0.00570**
SatisfactionRating_lag1		(0.00253)		(0.00254)		(0.00258)
Year FE	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y
State-Year FE	Y	Y	Y	Y	Y	Y
Observations	9,234	9,050	9,234	9,050	9,234	9,050
R-squared	0.618	0.605	0.617	0.604	0.617	0.604

Table 2-11. Continued

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
ROAlag1	0.134***	0.131***	0.136***	0.132***	0.135***	0.131***
	(0.0273)	(0.0314)	(0.0265)	(0.0311)	(0.0269)	(0.0315)
sizelag1	-0.0673***	-0.0659***	-0.0674***	-0.0663***	-0.0673***	-0.0660***
	(0.00891)	(0.0125)	(0.00887)	(0.0124)	(0.00891)	(0.0124)
leverage1lag1	0.120***	0.0988***	0.121***	0.0987***	0.120***	0.0982***
	(0.0196)	(0.0174)	(0.0200)	(0.0175)	(0.0198)	(0.0175)
marketSharelag1	0.0697**	0.0756**	0.0679**	0.0742**	0.0681**	0.0739**
	(0.0330)	(0.0307)	(0.0333)	(0.0307)	(0.0334)	(0.0304)
RDlag1	-0.0458*	-0.0430	-0.0459*	-0.0417	-0.0456*	-0.0419
	(0.0235)	(0.0297)	(0.0252)	(0.0296)	(0.0252)	(0.0299)
Year FE	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y
State-Year FE	Y	Y	Y	Y	Y	Y
Observations	9,234	9,050	9,234	9,050	9,234	9,050
R-squared	0.618	0.605	0.617	0.604	0.617	0.604

Table 2-12-A. When employees writes more about their firm?
(Firm's performance as employees' motivation to provide longer textual disclosure)

This table presents the relation between the amount of employees' textual disclosure and change in firm's performance. The amount of employees' textual disclosure is measured by "number of words employees provide", and firm performance is measured by firm excess Gap which is the percentage change in firms' excess return compared to the last year. In 1st, 3rd and 4th regressions our dependent variable is Change_in_Total_words1 which is natural log of "change" in Total number of words compared to the previous year. In 2nd, 5th, and 6th regressions our dependent variable is Change_in_Total_words2 which is percentage change in total number of words compared to the last year. In regression 1 and 2 we test for the variable of concern while we have no control variable other than Fixed Effects. In regression 3 and 5 we control for lagged firm characteristics and performance, while in regression 4 and 6 we control for percentage change in control variables compared to the lagged period. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Gap Excess	2.64e-05*	0.000237**	2.64e-05*	8.23e-05***	0.000231**	0.000724***
Return	(1.42e-05)	(9.23e-05)	(1.38e-05)	(2.37e-05)	(0.000101)	(0.000176)
sizeLag			0.000230		-0.00394	
			(0.00677)		(0.0426)	
leverageLag			0.00548		0.0495	
			(0.0115)		(0.0831)	
ATOLag			0.00114		0.0380	
			(0.00919)		(0.0557)	
RDLag			-0.0136		-0.172**	
			(0.00871)		(0.0747)	
marketShareLag			-0.0418		-0.305	
			(0.0300)		(0.358)	
SizeGap				0.0489		1.694*
				(0.120)		(0.914)
LeverageGap				-3.95e-05		-0.000285
				(4.13e-05)		(0.000366)
ATOGap				0.0149		0.286**
				(0.0153)		(0.118)
RDGap				0.00291		0.0551
				(0.00436)		(0.0412)
Market ShareGap				-0.0109		-0.203**
				(0.0115)		(0.0813)
Firm FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
State-Year FE	Y	Y	Y	Y	Y	Y
Observations	8,482	8,482	8,284	3,500	8,284	3,500
R-squared	0.143	0.184	0.146	0.182	0.187	0.247

Table 2-12-B. When employees writes more about their firm?
(Firm's performance as employees' motivation to provide longer textual disclosure)

This table presents results for the same test as Table 2-12-A, while we just changed our "word counting". In table 2-12-A we consider changes in "Total number of words", but here we use "Adjusted number of words" which is the total number of words when we exclude Stop words list of Luagran & McDonald.The amount of employees' textual disclosure is measured by "number of words employees provide", and firm performance is measured by firm excess return Gap which is the percentage change in firms' excess return compared to the previous year. In 1st, 3rd and 4th regressions our dependent variable is Change_in_Adj_words1 which is natural log of "change" in Adjusted number of words compared to the last year. In 2nd, 5th, and 6th regressions our dependent variable is Change_in_Adj_words2 which is percentage change in Adjusted number of words compared to the last year. In regression 1 and 2 we test for the variable of concern while we have no control variable other than Fixed Effects. In regression 3 and 5 we control for lagged firm characteristics and performance, while in regression 4 and 6 we control for percentage change in control variables compared to the lagged period. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Gap Excess	2.68e-05**	0.000196***	2.70e-05**	8.26e-05***	0.000193**	0.000595***
Return	(1.22e-05)	(7.12e-05)	(1.23e-05)	(2.45e-05)	(7.86e-05)	(0.000175)
sizeLag			0.000252		-0.00515	
			(0.00605)		(0.0339)	
leverageLag			0.00738		0.0417	
			(0.0110)		(0.0713)	
ATOLag			-0.000591		0.0206	
			(0.00801)		(0.0477)	
RDLag			-0.0164**		-0.157***	
			(0.00799)		(0.0607)	
marketShareLag			-0.0394		-0.210	
			(0.0274)		(0.308)	
SizeGap				0.0134		1.186
				(0.117)		(0.755)
LeverageGap				-4.54e-05		-0.000199
				(4.55e-05)		(0.000272)
ATOGap				0.0138		0.233**
				(0.0148)		(0.0993)
RDGap				0.00396		0.0459
				(0.00380)		(0.0346)
MarketShareGap				-0.00988		-0.169**
				(0.0114)		(0.0704)
Firm FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
State-Year FE	Y	Y	Y	Y	Y	Y
Observations	8,482	8,482	8,284	3,500	8,284	3,500
R-squared	0.138	0.171	0.141	0.175	0.174	0.246

Table 2-13. What do employees talk about?

This table presents the employees' concerns and areas they talk about in their voluntarily textual disclosures. We cluster words to see each areas' importance and its weight compared to the whole text. Since our approach in this test is based on Bag of Words method, we focus on words, instead of sentences. We focuses on words that we can clearly link to a specific employees' concern. In the first step we sort words based on number of time each one has been repeated in the text while we had excluded Stop words list of Loughran & McDonalds. Not surprisingly, some firm related, some management/manager related, some personal related, and some employee related words repeated frequently. Some of the frequently repeated words in our list are not meaningful by themselves like some verbs, adjectives and adverbs. We then exclude those words that we cannot specifically label to anyone of the employee concern, like good, great, lot, hard, people, high, low, nice, etc to have only stand-alone meaningful words. Doing so we are able to construct 9 different labels for mostly repeated words in employees' text as it is shown in Table below. Advantage of this method is that we have handful words in each cluster, and they are clearly related to the label and we don't need linguists' confirmations for relation between words in each cluster and its label. Each word represents itself was well as its derivational words. Like their plural forms, infinitive, etc.

	Compensation	Management	Employees	Location	Culture	Work-life	Outside	Company	Personal
	Pay	management	employees	place	environment	work	client	company	training
	benefits	CEO	Team	store	culture	time	customer	business	vacation
	salary	manager	Group	office	friendly	hours	market	corporate	experience
	money	leadership	Staff	room	atmosphere	working		organization	learn
	compensation	senior	department	location	culture	balance			opportunity
	payroll	leader	workers			life			hire
	bonus		co-workers			flexible			leave
	commission					Work-life			morale
	promotion								health
	wage								personal
Whole Sample	5.7%	5.8%	6.6%	2.6%	2.4%	12.5%	1.6%	5.3%	5.1%
Cleaned Sample	12%	12.3%	13.9%	5.5%	5%	26.4%	3.3%	11.1%	10.7%

Appendix D

Table D-1. Lagged employee Opinion (PCF variables) Vs firm performance
Weighted Least Squares Regression

This table presents the relation between lagged employee opinions, and firm performance while we use long of number of reviews as the weight in this WLS regression. Here, our variables of concern are lagged employees AggregateRating and lagged Adjusted SatisfactionRating. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1)
sizelag1	-0.0327***
	(0.00964)
leverage2lag1	-0.0291**
	(0.0141)
marketSharelag1	0.0252
	(0.0295)
ATOlag1	0.0470***
	(0.00778)
RDlag1	0.0182
	(0.0441)
AggregateRating_lag1	0.00643***
	(0.00157)
SatisfactionRating_lag1	-0.00568**
	(0.00214)
Year FE	Y
State FE	Y
Firm FE	Y
WLS regression	Y
Observations	7,352
R-squared	0.631

Table D-2. Lagged employee Opinion (PCF variables) Vs two years ahead firm performance

This table presents the relation between lagged employee opinions, and lead firm performance. Here, our variables of concern are lagged employees AggregateRating and lagged Adjusted SatisfactionRating (at time $(t-1)$), and the dependent variable is firm performance three years after the date we collect employees reviews. It means that the dependent variable is ROA $(t+2)$. In the first two regressions we control for firm characteristics at time $(t-1)$, in 3_{rd} and 4_{th} regressions we control for characteristics collected at time (t), and finally in 5_{th} and 6_{th} regressions we control for characteristics at time $(t+1)$. In all tests variables of concerns are from $(t-1)$. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level. Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) ROA(t+2)	(2) Q (t+2)	(3) ROA(t+2)	(4) Q (t+2)	(5) ROA(t+2)	(6) Q (t+2)
Adjusted SatisfactionRating_lag1	0.000776	0.0139	0.000555	0.00427	0.00109	0.0109
	(0.00177)	(0.0152)	(0.00175)	(0.0155)	(0.00171)	(0.0159)
AggregateRating_lag1	0.00322***	0.0183*	0.00298***	0.0203**	0.00238**	0.0236**
	(0.00106)	(0.0100)	(0.00106)	(0.0102)	(0.00107)	(0.0104)
sizelag1	-0.0164**	-0.466***				
	(0.00685)	(0.0709)				
leveragelag1	0.00326	0.0422				
	(0.0139)	(0.155)				
marketSharelag1	-0.00425	-0.00204				
	(0.0277)	(0.269)				
ATOlag1	0.00970	-0.175***				
	(0.00750)	(0.0603)				
RDlag1	0.0536**	-1.341***				
	(0.0227)	(0.277)				
Size			-0.0227***	-0.580***		
			(0.00733)	(0.0721)		
leverage			0.0116	0.0252		
			(0.0126)	(0.149)		
marketShare			-0.0156	0.268		
			(0.0262)	(0.272)		
ATO			0.0170*	-0.160**		
			(0.00949)	(0.0787)		
RD			0.103***	-1.646***		
			(0.0276)	(0.562)		
Firm FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y	Y
Observations	6,504	6,201	6,700	6,388	6,700	6,395
R-squared	0.648	0.867	0.662	0.868	0.661	0.866

Table D-2. Continued

VARIABLES	(1) ROA(t+2)	(2) Q (t+2)	(3) ROA(t+2)	(4) Q (t+2)	(5) ROA(t+2)	(6) Q (t+2)
sizelead1					-0.0175**	-0.500***
					(0.00831)	(0.0600)
leveragelead1					-0.0268**	-0.0984
					(0.0132)	(0.130)
marketSharelead1					0.0123	0.159
					(0.0270)	(0.246)
ATOlead1					0.0323***	0.0418
					(0.00892)	(0.0754)
RDlead1					-0.112***	0.231
					(0.0321)	(0.911)
Firm FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y	Y
Observations	6,504	6,201	6,700	6,388	6,700	6,395
R-squared	0.648	0.867	0.662	0.868	0.661	0.866

Table D-3. Lagged employee Opinion (PCF variables) Vs Lead firm performance

This table presents results the same as Table 2-5-A and 2-5-B while we change our control variables time. In table 2-5-B we used lagged control variables $(t-1)$, while here we use control variables collected at time (t). Here we show that employees' opinion is predictive of future firm performance measured by ROA even when we change our control variables from lagged to time (t).Our variables of concern are lagged AggregateRating and lagged SatisfactionRating [both collected at $(t-1)$], while the dependent variable is lead firm performance at $(t+1)$. We report results for AggregateRating in 1st, and adjusted SatisfactionRating in 2nd regression. In 3rd regression we use both AggregateRating and Adjusted SatisfactionRating simultaneously. In the 4th regression we control for ROA (t) as well (which is firm performance one year after the time employee opinion collected). In all regressions bellow the dependent variable is ROA at time $(t+1)$ while we used lagged $(t-1)$ employee opinions as our variables of concern. In first four regressions we exclude Financial and Utility firms while we include whole sample in regressions 5 to 8. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level. Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)
	Aggregate	Adjusted Satisfaction	Both	Both
Size	-0.0202**	-0.0206**	-0.0209**	-0.0251***
	(0.00818)	(0.00805)	(0.00816)	(0.00726)
Leverage	-0.0305**	-0.0297**	-0.0299**	-0.0160
	(0.0134)	(0.0135)	(0.0135)	(0.0137)
MarketShare	0.00240	0.000616	0.00107	0.00494
	(0.0219)	(0.0220)	(0.0218)	(0.0207)
ATO	0.0358***	0.0350***	0.0350***	0.0328***
	(0.00742)	(0.00737)	(0.00748)	(0.00753)
RD	-0.0660	-0.0686	-0.0667	-0.0468
	(0.0679)	(0.0671)	(0.0672)	(0.0634)
ROA				0.0781**
				(0.0292)
AggregateRating_lag1	0.00261*		0.00264*	0.00237*
	(0.00138)		(0.00137)	(0.00138)
Adjusted Satisfaction_lag1		-0.00464**	-0.00468**	-0.00443**
		(0.00176)	(0.00176)	(0.00173)
Firm FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
State FE	Y	Y	Y	Y
Utility and Financial Industry	EXC	EXC	EXC	EXC
Observations	7,072	7,072	7,072	7,072
R-squared	0.644	0.644	0.645	0.647

Table D-3.Continued

VARIABLES	(5) Aggregate	(6) Adjusted Satisfaction	(7) Both	(8) Both
Size	-0.0183** (0.00778)	-0.0187** (0.00765)	-0.0190** (0.00773)	-0.0231*** (0.00683)
Leverage	-0.0316** (0.0124)	-0.0308** (0.0125)	-0.0308** (0.0125)	-0.0157 (0.0125)
MarketShare	0.00118 (0.0186)	0.000259 (0.0187)	0.000273 (0.0186)	0.00363 (0.0176)
ATO	0.0346*** (0.00693)	0.0338*** (0.00686)	0.0338*** (0.00693)	0.0320*** (0.00681)
RD	-0.0673 (0.0687)	-0.0697 (0.0680)	-0.0679 (0.0681)	-0.0447 (0.0632)
ROA			0.0891*** (0.0290)	
AggregateRating_lag1	0.00239** (0.00117)		0.00241** (0.00117)	0.00212* (0.00119)
Adj. Satisfaction_lag1	-0.00422** (0.00159)	-0.00424** (0.00159)	-0.00390** (0.00154)	
Firm FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
State FE	Y	Y	Y	Y
Utility and Financial Industry	INC	INC	INC	INC
Observations	8,351	8,351	8,351	8,351
R-squared	0.646	0.646	0.646	0.649

Table D-4. Lagged employee Opinion (each employee rating individually) Vs firm Value

This table presents the same results as Table 3-1 while we use Q ratio instead of ROA as our dependent variable. Here we do not use our PCF variables (AggregateRating and SatisfactionRating). We have Overall Rating in the first regression, Outlook rating in 2nd , CEO approval in the 3rd, Recommend to Friend in 4th, senior management rating in 5th, Culture in 6th, career opportunity rating in 7th, compensation rating in 8th, and work-life balance in 9th regressions. Each regression shows informativeness of each one of employees' reviews. These are variables that we use to make our PCF variables (AggregateRating and SatisfactionRating). In all regressions bellow the dependent variable is Q ratio at time (t) while we used lagged ($t-1$) employee opinions as our variables of concern, and we control for the lagged firm value (Lagged Tobin Q ratio) as well as other firm characteristics. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state. Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) Overall	(2) Outlook	(3) Ceoappr	(4) Recom	(5) Snr_mgmt
overall_lag1	0.0258***				
	(0.00879)				
outlook_lag1		0.217***			
		(0.0223)			
ceoappr_lag1			0.0459***		
			(0.0144)		
recom_lag1				0.0351**	
				(0.0132)	
snr_mgmt_lag1					0.0244
					(0.0146)
sizelag1	-0.271***	-0.292***	-0.270***	-0.271***	-0.557***
	(0.0646)	(0.0653)	(0.0642)	(0.0645)	(0.115)
leveragelag1	-0.0878	-0.0758	-0.0869	-0.0862	0.207
	(0.116)	(0.115)	(0.118)	(0.116)	(0.195)
marketSharelag1	-0.0145	-0.0169	-0.0104	-0.0177	0.205
	(0.131)	(0.131)	(0.132)	(0.131)	(0.216)
ATOlag1	0.00510	-0.00454	0.00502	0.00486	-0.203**
	(0.0422)	(0.0429)	(0.0424)	(0.0421)	(0.0876)
Qlag1	0.373***	0.366***	0.372***	0.373***	0.289***
	(0.0641)	(0.0633)	(0.0641)	(0.0641)	(0.0406)
RDlag1	-0.311	-0.319	-0.315	-0.315	1.541
	(0.797)	(0.796)	(0.794)	(0.796)	(1.231)
Firm FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y
Observations	8,357	8,357	8,357	8,357	4,916
R-squared	0.854	0.856	0.855	0.854	0.902

Table D-4. Continued

VARIABLES	(6) Culture	(7) Careeroppr	(8) Comp	(9) Worklife
culture_lag1	0.0288***			
	(0.00795)			
careeroppr_lag1		0.0336***		
		(0.00899)		
comp_lag1			0.0337***	
			(0.00920)	
worklife_lag1				0.0297**
				(0.0114)
sizelag1	-0.271***	-0.275***	-0.270***	-0.270***
	(0.0646)	(0.0640)	(0.0654)	(0.0648)
leveragelag1	-0.0857	-0.0823	-0.0889	-0.0869
	(0.117)	(0.117)	(0.116)	(0.118)
marketSharelag1	-0.0156	-0.00600	-0.00101	-0.0127
	(0.132)	(0.130)	(0.131)	(0.132)
ATOlag1	0.00657	0.00296	0.0104	0.00607
	(0.0420)	(0.0414)	(0.0422)	(0.0423)
Qlag1	0.373***	0.372***	0.373***	0.374***
	(0.0640)	(0.0642)	(0.0642)	(0.0640)
RDlag1	-0.309	-0.309	-0.349	-0.307
	(0.792)	(0.799)	(0.780)	(0.790)
Firm FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
State FE	Y	Y	Y	Y
Observations	8,339	8,337	8,335	8,340
R-squared	0.855	0.855	0.855	0.855

Table D-5. Lagged employee Opinion (PCF variables) Vs firm Value

This table presents the same results as Table 2-4-A while we use Tobin Q ratio instead of ROA. Here when we use our PCF variables (AggregateRating and SatisfactionRating). We report results for AggregateRating in 1st, Unadjusted SatisfactionRating in 2nd, and Adjusted SatisfactionRating in 3rd regression. In 4th regression we use both AggregateRating and Adjusted SatisfactionRating simultaneously. In the last regression we control for lagged Q ratio as well (which is firm value at the time employee opinion collected). In all regressions bellow the dependent variable is Q ratio at time (t) while we used lagged ($t-1$) employee opinions as our variables of concern, and we control for the firm performance as well as other firm characteristics at the same time we collect employees' reviews. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level. Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) AggregateRating	(2) Unadjusted Satisfaction	(3) Adjusted Satisfaction	(4) Both	(5) Both
sizelag1	-0.368***	-0.364***	-0.370***	-0.371***	-0.274***
	(0.0621)	(0.0625)	(0.0624)	(0.0621)	(0.0492)
leveragelag1	-0.423***	-0.429***	-0.420***	-0.418***	-0.0837
	(0.146)	(0.147)	(0.147)	(0.146)	(0.120)
marketSharelag1	0.153	0.152	0.137	0.149	-0.00381
	(0.234)	(0.235)	(0.232)	(0.233)	(0.156)
ATOlag1	0.172**	0.176**	0.169**	0.169**	0.00669
	(0.0747)	(0.0752)	(0.0745)	(0.0744)	(0.0536)
RDlag1	-0.623	-0.616	-0.629	-0.629	-0.358
	(0.625)	(0.626)	(0.640)	(0.630)	(0.701)
Qlag1					0.371***
					(0.0447)
AggregateRating_lag1	0.0476***			0.0475***	0.0359***
	(0.0108)			(0.0108)	(0.00909)
Unadj. satisfactionRating_lag1		0.0307***			
		(0.00937)			
Adj. SatisfactionRating_lag1			-0.0267*	-0.0259*	-0.000763
			(0.0156)	(0.0154)	(0.0144)
Firm FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y
Observations	8,520	8,520	8,520	8,520	8,335
R-squared	0.828	0.827	0.827	0.828	0.855

Table D-6. Lagged employee Opinion (PCF variables) Vs Lead firm value

This table presents the same results as Table 2-5-A while we use Q ratio instead of ROA as our dependent variable. Our variables of concern are lagged AggregateRating and lagged SatisfactionRating [both collected at $(t-1)$], while the dependent variable is lead firm value at $(t+1)$. We report results for AggregateRating in 1st, Unadjusted SatisfactionRating in 2nd, and adjusted SatisfactionRating in 3rd regressions. In 4th regression we use both AggregateRating and Adjusted SatisfactionRating simultaneously. In the 5th regression we control for lagged Q ratio (which is firm performance at the time employee opinion collected), and finally in the last regression we control for Q ratio at time (t) which is a measure for firm value one period ahead of the time we collected employee reviews. In all regressions bellow the dependent variable is Q ratio at time $(t+1)$ while we used lagged $(t-1)$ employee opinions as our variables of concern. All regressions are firm, year, and state fixed effect. Standard errors are clustered at firm and state level. Variables definitions can be found in Appendix C. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

VARIABLES	(1) AggregateRating	(2) Unadjusted Satisfaction	(3) Adjusted Satisfaction	(4) Both	(5) Both	(6) Both
sizelag1	-0.495***	-0.492***	-0.495***	-0.495***	-0.474***	-0.370***
	(0.0639)	(0.0639)	(0.0638)	(0.0638)	(0.0654)	(0.0568)
leveragelag1	-0.240	-0.245	-0.241	-0.240	-0.173	-0.0338
	(0.165)	(0.165)	(0.165)	(0.166)	(0.162)	(0.141)
marketSharelag1	0.137	0.140	0.138	0.136	0.0617	0.0399
	(0.270)	(0.271)	(0.271)	(0.270)	(0.270)	(0.208)
ATOlag1	-0.0613	-0.0576	-0.0606	-0.0619	-0.111*	-0.148***
	(0.0700)	(0.0702)	(0.0698)	(0.0696)	(0.0637)	(0.0508)
RDlag1	-1.753***	-1.747***	-1.761***	-1.755***	-1.723***	-1.207***
	(0.326)	(0.326)	(0.331)	(0.327)	(0.312)	(0.285)
Qlag1					0.0981**	
					(0.0420)	
Q						0.442***
						(0.0344)
AggregateRating_lag1	0.0298***			0.0298***	0.0288***	0.00955
	(0.0106)			(0.0106)	(0.0104)	(0.00871)
Unadjusted Satisfaction_lag1		0.0226**				
		(0.00906)				
Adjusted Satisfaction_lag1			-0.00437	-0.00427	0.00149	0.0107
			(0.0166)	(0.0165)	(0.0164)	(0.0144)
Firm FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y	Y
Observations	7,688	7,688	7,688	7,688	7,466	7,513
R-squared	0.844	0.844	0.844	0.844	0.845	0.877

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