

Employee Treatment and Annual Report Readability

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Abstract

Purpose – In this study, we examine the relation between employee treatment and annual report readability, which is measured as a reading difficulty score.

Design/methodology/approach – We use regression analysis to explore the impact of employee treatment on annual report reading difficulty.

Findings – We find a significant negative relation between employee treatment and reading difficulty, which suggests that annual reports of firms with better employee treatment are easier to read and understand (i.e. more readable).

Originality/value – Our study contributes to a more thorough knowledge of annual report readability and our findings may be of relevance to accounting standard setters and investors.

Keywords: Employee treatment; Readability; Reading difficulty; Annual report

JEL Classification: D23, G14, G38, M12

Employee Treatment and Annual Report Readability

1. Introduction

Employees are perceived as the key source of a firm's competitive edge in hypercompetitive marketplaces (Coff, 1997; Pfeffer, 1994; Zingales, 2000). Employee treatment is a multidimensional concept that includes employee benefits, employee participation, and incentive initiatives (e.g. Chen et al., 2016). Prior research highlights that it is essential that organizations understand the importance of employee welfare, motivate their employees, maintain good employee relations, mitigate workforce conflicts, retain talented employees, and improve overall labor productivity (Chong and Leung Tak-Wing, 2003; Goodwin and Sethapokin, 1996; Kansal and Joshi, 2015).

Prior studies document a positive relation between employee treatment and firm performance (Edmans, 2011; Guo et al., 2016; Miles and Mangold, 2005; Mito, 1990). These findings are consistent with early human resources theories (Maslow, 1943), but also with more recent research findings. Mito (1990) describes how Japanese workers view themselves as part of the employing organization and perform with high levels of commitment, leading to strong economic firm performance. Miles and Mangold (2005) describe how Southwest Airlines has consistently prioritized its employees, and may be perceived as the most prosperous business in the airline sector. Edmans (2011) reports that favorable employee treatment is associated with stronger firm operating performance and stronger share price. Guo et al. (2016) show that better employee treatment can significantly improve internal control, leading to stronger performance. Prior research has also focused on the influence of employee treatment on firm decisions such as choosing the level of cash holdings (Ghaly et al., 2015) and the level of leverage ratios (Bae et al., 2011).

Surprisingly, very few studies have examined the impact of employee treatment on the readability of the annual report, a key component of financial reporting quality. The Securities and Exchange Commission (SEC) states that the usefulness of financial information is proportional to its ease of comprehension (i.e. readability) by readers (SEC, 1998). Similarly, Statement of Financial Accounting Concepts (SFAC) No.2 (FASB, 1980) states that information is useless if its intended audience cannot comprehend it. The concept of readability refers to information users' capacity to comprehend the meanings expressed in corporate disclosures (Loughran and McDonald, 2014). Research on the readability of corporate disclosures is important because it determines the usefulness of financial information to different stakeholders. More specifically, prior research (e.g. Bonsall and Miller, 2017; Li, 2008; Loughran and McDonald, 2014; Nadeem, 2021) argues that narrative disclosures in annual reports have significant economic consequences, such as stock return volatility, stock price crash risk, and cost of capital variation, and are valuable to information users. It is therefore important to gain an understanding of the factors that can explain variation in readability (Hasan, 2020).

In this study, we specifically address the topic of how employee treatment affects annual report readability. We measure readability using reading difficulty scores. We posit a negative relation between employee treatment and annual report reading difficulty. We expect that firms with better employee treatment have more readable annual reports (i.e. lower reading difficulty) because prior research links stronger firm performance to more readable annual reports (e.g. Li, 2008). Using a large panel sample with 20,333 firm-year observations (representing 2,498 unique public firms) from 1993 to 2019 in the United States, we document a significant and negative relation between employee treatment and reading difficulty, suggesting that annual reports of companies treating employees better are easier to read and understand. We perform several checks

to mitigate concerns about the robustness of our primary findings and possible endogeneity issues in our empirical analysis, and still find a significant negative relation, consistent with the hypothesis.

Our study makes several important contributions. First, our study contributes to two distinctive literature streams: readability of corporate disclosures in accounting literature and employee welfare in human resources management literature. Given that employee welfare is a component of corporate social responsibility (CSR) activities, our study also contributes to CSR literature. By demonstrating a strong negative influence of employee treatment on annual report readability, our study contributes to a more thorough knowledge of readability factors and establishes a possible first empirical relation between annual report readability and employee treatment. Second, by showing a negative link between employee treatment and reading difficulty, our findings may be of relevance to accounting standard setters when they update current standards or seek to implement new corporate disclosure rules. From the public policy perspective, society may promote more public policies that increase employee treatment because doing so can improve the transparency and quality of financial reporting. Third, our study has practical implications. For example, our findings may encourage investors to invest in firms with better employee treatment because such firms have easier to read annual reports.

The rest of our study is structured as follows. Section 2 describes related research on employee treatment and annual report readability, and develops the hypothesis. Section 3 presents our research design including variable measurement, empirical specifications, and information about sample selection and descriptive statistics. Section 4 presents primary findings. Sections 5 and Section 6 report results of additional tests and endogeneity tests respectively. Section 7 provides the conclusion.

2. Literature Review and Hypothesis Development

2.1 Employee Treatment

A number of prior studies highlight the link between favorable employee treatment and increased firm performance. Mito (1990) documents how Japanese companies were among the first to adopt an employee-first strategy which lead to successful business outcomes. Edmans (2011) states that corporate success is positively associated with a firm's prioritization of stakeholder relationships, and most notably the relationship with employees as employees are the most significant intangible asset to a firm. Bae et al. (2011) utilize data from S&P 500 corporations from 1995 to 2007 to show a substantial positive link between employee treatment and corporate leverage, suggesting that companies that treat their employees well have lower debt ratios. El Ghoul et al. (2011) report that firms with good CSR practices, including favorable employee treatment, have a reduced cost of equity. Faleye and Trahan (2011) assert that favorable employee treatment can improve firm operational performance, as measured by employee productivity and business profitability, resulting in better market valuation. Guo et al. (2016) report that firms with superior employee treatment have greater internal control quality and fewer financial misstatements and also contend that such firms may outperform other firms as a result of their higher quality internal control.

Ghaly et al. (2015) find that firms who treat their employees well tend to maintain greater cash holdings. Cui et al. (2018) similarly find a significant positive association between employee protection and corporate cash holdings, indicating a strong willingness to protect employees and invest in employee welfare as well as a strong financial commitment to employees. Using a panel sample from 1992 to 2011, Chen et al. (2016) report a strong and positive relation between employee treatment and business innovation performance, suggesting that increasing employee

satisfaction may result in more patents. In a similar vein, Mao and Weathers (2019) report a substantial positive relationship between good employee treatment and business innovation performance. Chen et al. (2019) present evidence that suggests that treating employees better may help bondholders by resulting in a smaller bond spread. Zhang et al. (2020) discover a substantial inverse link between employee treatment and the incidence of corporate fraud, suggesting that such companies are more likely to fulfill labor contracts and value long-term relationships with their employees. Leonard and Sun (2022) find that firms that treat employees better are less likely to discontinue business operations. Collectively, the findings mentioned above relate positive employee treatment to positive organizational outcomes.

2.2 Annual Report Readability

The readability of corporate filings, especially annual reports, has increasingly been the subject of accounting and financial research (Bonsall et al., 2017). A number of studies concentrate on how readability affects firm-level characteristics. For example, more readable corporate disclosures, including annual reports, can facilitate increased market analyst understanding (Lehavy et al., 2011) and reduce ambiguity in analyst reports (Bozanic and Thevenot, 2015). These more readable disclosures can also facilitate enhanced decision making (Bloomfield, 2002), which in turn can serve to attract individual investors (Lawrence, 2013) and curtail underreaction from investors (You and Zhang, 2009). Further studies report that enhanced readability can reduce both earnings management activities (Lo et al., 2017) and earnings volatility (Loughran and McDonald, 2011), resulting in raised bond credit ratings (Bonsall and Miller, 2017), lower cost of debt (Hoffmann and Kleimerier, 2019), more favorable loan contract terms (Ertugrul et al., 2017) and lower cost of equity (Rjiba et al., 2021). Prior research also reports that enhanced readability can curtail agency conflicts (Luo et al., 2018), reduce potential risks (Guay et al., 2016), and lower audit fees and efforts (Blanco et al., 2021; Wang et al., 2021). In conclusion, this study stream contends that increased readability can benefit information users by making it simpler for them to read, comprehend, and make better judgments. A lesser level of readability, on the other hand, may have a negative impact on the decision-making process and reveal a larger degree of agency conflicts. It therefore appears that more understandable corporate disclosures are linked to a variety of positive outcomes.

Other researchers have explored factors that might impact the readability. For instance, Li (2008) finds that the annual reports of firms with higher levels of earnings and earnings persistence are easier to read and comprehend, which suggests that firms make their annual reports more challenging to read when managers attempt to conceal subpar corporate operating performance. De Franco et al. (2015) find that reports written by less competent analysts are harder to understand and Hasan (2020) similarly asserts that reports by more competent managers are more readable. Ginesti et al. (2018) find that female board members can positively (negatively) influence annual report readability in firms with small board connections (large board connections). Nadeem (2021) also finds that board gender diversity increases annual report readability, underscoring the significance of female board member composition. Drago et al. (2018) state that family business annual reports become simpler to read as controlling families gain in power while Sun et al. (2022) report that it is harder to read the annual reports of companies with powerful CEOs. Lim et al. (2018) examine the influence of business strategy on annual report readability and find that firms with an innovation-oriented strategy have less readable annual reports than those with an efficiency-oriented strategy. Similarly, Habib and Hasan (2018) find that firms with “prospector” strategy, relative to firms with “defender” strategy, have less readable annual reports. Chakrabarty

et al. (2018) assert that the readability of annual reports is negatively correlated with managers' risk incentives while Kawada and Wang (2019) report that a going-concern opinion makes annual reports easier to comprehend. Jha (2019) contends that companies headquartered in regions with greater social capital produce annual reports that are simpler to understand. In a similar vein, Xu et al. (2020) investigate the impact of political corruption on the readability of annual reports and report that companies based in more corrupt locations produce less readable annual reports. In conclusion, this study looks for factors that influence readability, particularly those that might make corporate disclosures easier to understand. Our study adds to this body of research by examining how employee treatment affects how easily readers can comprehend annual reports.

2.3 Hypothesis Development

Early research from authors like Maslow (1943), Herzberg (1959), and McGregor (1960) suggests that employee satisfaction is crucial to the success of a firm as it encourages employees to work hard and helps firms to retain their most important employees. Additionally, prior studies show that prioritizing workers boosts firm performance (Edmans, 2011; Guo et al., 2016; Miles and Mangold, 2005). In the 1980s, Japanese companies adopted the employees-first philosophy, which turned out to be a successful business strategy (Mito, 1990). We note prior research such as Li (2008) documents a positive relation between firm performance and annual report readability. Therefore, if firms treating employees better have stronger operating performance, we expect that such firms have more-readable annual reports (i.e. easier to read). Hence, we predict a positive relation between employee treatment and annual report readability or a negative relation between employee treatment and reading difficulty. Thereby, we propose the following hypothesis.

H1. Employee treatment is negatively related to annual report reading difficulty.

3. Research Design

3.1 Measuring Annual Report Readability

In contrast to existing readability metrics like the Fog Reading Index (Li, 2008) and file size (Loughran and McDonald, 2014), the introduction of a comprehensive readability measure (known as the Bog Index) in Bonsall et al. (2017) examines the readability of narrative disclosures from multiple viewpoints, such as word and sentence complexity (e.g. the length of a 10-K report). The Bog Index has been utilized in several studies, and they have found that it is a reliable indicator of readability (e.g. Hasan, 2020). The Bog Index is multifaceted and the formula to construct the Bog Index is listed below.

$$\text{Bog Index} = \frac{1}{4} \text{Sentence Bog} + \frac{1}{2} \text{Word Bog} - \text{Pep} \quad [\text{Equation 1}]$$

The first element (Sentence Bog) assesses the readability of sentence length (Bonsall et al. (2017)). The second (Word Bog) assesses the readability of difficulties with plain English (passive verbs, hidden verbs, overwriting, legal terminology, cliches, abstract words, and wordy phrases), as well as word difficulty (heavy words, abbreviations, and specialist terms). The third element (Pep) encapsulates readability qualities (i.e. effective writing) that might aid readers in understanding. A high (low) score of the Bog Index suggests that the narrative disclosures are difficult to read (are easy to read). As a result, a low Bog Index score indicates a higher level of readability. The values of the Bog Index are broken down as follows to help with interpretation (Bonsall et al., 2017): 1,000 and above 5 not readable; 131–1,000 5 dreadful; 101–130 5 bad; 71–100 5 poor; 41–70 5 average; 21–40 5 good; 0–20 5 most readable.

3.2 Measuring Employee Treatment

Consistent with prior research (e.g. Bae et al., 2011; Chen et al., 2016; Ertugrul, 2013), we utilize employee relations scores as a proxy for employee treatment in this study. We obtain this data from Morgan Stanley Capital International (MSCI)'s Environmental, Social and Governance (ESG) database, which has distinct evaluations for employee relations strengths and concerns. Union relations strength, monetary profit sharing, employee engagement, retirement benefit strength, health and safety strength are among the components of strengths. Correspondingly, concerns include union relations, health and safety, job cutbacks, and retirement benefit problems. Appendix 1 provides some sample descriptors for each of these components. Following Verwijmeren and Derwall (2010), Faleye and Trahan (2011), and Ghaly et al. (2015), we construct the employee treatment proxy (EMP_TREATMENT) by adding strengths components and concerns components, then subtracting total concerns from total strengths. The equation is as follows.

$$\text{EMP_TREATMENT} = \text{Total strengths of employee relations} - \text{Total concerns of employee relations} \quad [\text{Equation 2}]$$

3.3 Empirical Specification

To study the impact of employee treatment on annual report readability, we use the following regression model.

$$\begin{aligned} \text{READ_DIFFICULTY} = & \beta_0 + \beta_1 \text{EMP_TREATMENT} + \beta_2 \text{SIZE} + \beta_3 \text{LEV} + \beta_4 \text{ROA} + \\ & \beta_5 \text{MTB} + \beta_6 \text{CFO} + \beta_7 \text{CAPINT} + \beta_8 \text{FIRMAGE} + \beta_9 \text{MABILITY} + \beta_{10} \text{SITEM} + \\ & \beta_{11} \text{MER_ACQ} + \beta_{12} \text{DIS_ACC} + \beta_{13} \text{LOSS} + \beta_{14} \text{SEGMENT} + \beta_{15} \text{BIG4} + \\ & \beta_{16} \text{CGOV} + \text{Industry Indicators} + \text{Year Indicators} + \epsilon \end{aligned} \quad [\text{Equation 3}]$$

READ_DIFFICULTY is the Bog reading difficulty index scores, which reflects the level of difficulty to read and understand corporate annual reports. Our primary variable of interest, EMP_TREATMENT, measures the level of employee treatment. If our hypothesis is valid, then we expect a significant and negative relation between EMP_TREATMENT and READ_DIFFICULTY, implying that the annual reports of firms with better employee treatment are easier to read and understand.

Regarding control variables, we control for other variables that may influence the level of readability in Equation (3). Consistent with studies including Lo et al. (2017), we specifically control for total firm size (SIZE), firm growth opportunities (MTB), firm age (FIRMAGE), the presence of special items (SITEM), the presence of merger or acquisition transactions (MER_ACQ), earnings management activities that are measured as the performance-matched discretionary accruals (DIS_ACC) (Kothari et al., 2005), whether a firm-year observation reports a loss (LOSS), and the natural log of the number of business segments (SEGMENT). Following Hasan (2020), we also control for managerial ability (MABILITY), firm operating performance (ROA), leverage ratio (LEV), operating cash flows (CFO), and the intensity of capital structure (CAPINT). We take corporate governance (CGOV) into account in Equation (3) in accordance with Guo et al. (2016). We also include the presence of BIG 4 auditors (BIG4) in the model. After incorporating year and industry indicators and winsorizing all continuous variables at the 1st and 99th percentiles, we estimate Equation (3) in accordance with Petersen (2009) by using two-way (by firm and by year) clustered standard errors ordinary least squares (OLS) regression. The definitions of the variables are provided in Appendix 2.

3.4 Sample Selection and Descriptive Statistics

Our sample selection starts with the initial MSCI CSR dataset including the data on employee relations for the period of 1993 and 2019 from the MSCI's ESG database, which consists of 71,164 firm-year observations. Next, we merge the above dataset with the readability dataset (i.e. the Bog index) and lose 26,377 observations. We further merge the combined employee treatment and readability dataset with the Compustat database and lose 22,754 observations with insufficient data to construct control variables in Equation (3). Our final sample consists of 22,033 firm-year observations from 1993 to 2019, representing 2,498 U.S. public companies. Panel A of Table 1 presents our sample selection process.

Panel B of Table 1 displays sample distribution by year. There are 140 observations in 1993 and 823 observations in 2019. The number of observations per year shows an upward trend from 1993 to 2010 and a downward trend from 2010 to 2019. Panel C of Table 1 shows sample distribution by industry that is based on the first two digits of the SIC code. The most represented industries in our sample are Business Services (SIC = 73) with 2,866 observations, Chemicals (SIC = 28) with 2,406 observations, and Electronic Equipment (SIC = 36) with 2,126 observations.

[insert Table 1 about here]

Table 2 presents our sample descriptive statistics. The mean and median values of reading difficulty (READ_DIFFICULTY) are 85.761 and 86.000, respectively, showing that corporate annual reports on average are difficult to read and understand. Table 2 also reports that the mean value of employee treatment (EMP_TREATMENT) is 0.065, which are consistent with recent studies. For instance, Leonard and Sun (2022) report the average employee treatment value of 0.067. Overall, the descriptive statistics of the dependent and the primary independent variable in our study are comparable to those in prior research. The mean (median) values of SIZE, LEV, ROA, MTB, and CFO are 7.207 (7.085), 0.188 (0.157), 0.030 (0.051), 3.531 (2.543), and 0.093 (0.100), respectively, implying that our sample firms demonstrate fairly normal operating performance. The average LOSS is 0.209, implying that approximately 21% of our firm-year observations report a negative net income. Collectively, our sample descriptive statistics reported in Table 2 are in line with general expectations.

[insert Table 2 about here]

We further check the normality of our dependent variable, namely READ_DIFFICULTY. First, we present a quantile-quantile plot (QQ plot) for this variable in Appendix 3. The graph appears linear. Next, we conduct a normality test. Because the sample size is over 2,000 observations, we use Kolmogorov test. The null hypothesis of a normality test is that there is no significant departure from normality. In the Kolmogorov test, the p-value is 0.1521, which fails to reject the null hypothesis and thus the assumption of normal distribution holds.

3.5 Correlations

The correlations of the variables utilized in our initial regression model (Equation (3)) are shown in Table 3. We specifically show correlations (correlation coefficients and p-values) for both Pearson and Spearman. The Pearson matrix (Spearman matrix) shows that the correlation between EMP_TREATMENT and READ_DIFFICULTY is 0.02 (0.01) with a p-value of 0.01 (0.09), showing a significant negative correlation between employee treatment and reading difficulty. This evidence provides some support to our hypothesis that suggests a negative relation between employee treatment and annual report reading difficulty. In addition, Table 3 shows that many correlation coefficients are fairly small, which suggests that our study is less likely to subject

to multicollinearity. As indicated by small p-values in Table 3, many correlations are statistically significant, implying that we need to conduct our study in a multivariate setting.

[insert Table 3 about here]

4. Main Results

Panel A of Table 4 presents our primary results of testing the hypothesis. The coefficient on EMP_TREATMENT is 0.203 with a t-value of 3.88, indicating a significant negative relation between employee treatment and reading difficulty. This evidence suggests that firms with better employee treatment have lower reading difficulty. In other words, annual reports of firms with better employee treatment are more readable to users. Our findings are in line with Guo et al. (2016), and suggest that the improved readability of annual reports in firms with better employee treatment may be the result of stronger firm performance due to improved internal control and governance. Thus, our hypothesis is strongly supported by the empirical evidence.

[insert Table 4 about here]

Panel A reports that READ_DIFFICULTY is positively related to SIZE, LEV, MABILITY, MER_ACQ, DIS_ACC, LOSS, SEGMENT, and BIG4, and negatively related to ROA, CFO, CAPINT, FIRMAGE, and CGOV. Overall, the results on the relations between the dependent variable and control variables are in line with prior research and general expectations. For example, the significant negative coefficient on ROA and/or the significant positive coefficient on LOSS suggest that firms with lower profitability have less-readable annual reports, consistent with Li (2008). The significant positive coefficient on SEGMENT suggests that firms with more business segments have less-readable annual reports – this is likely the case because a large number of segments increases the complexity of annual reports and therefore means that the reading difficulty increases accordingly.

Our primary findings are economically meaningful. For example, a one standard deviation increase in EMP_TREATMENT is associated with a decrease of 0.218% in READ_DIFFICULTY. The adjusted R² is 0.5154, indicating that approximately 51% of the observed variation can be explained by the inputs of our baseline model. As a robustness check, we re-estimate Equation 3 after removing firms in those highly regulated industries (SIC: 4000-4999 & 6000-6999) and still obtain similar results, supporting a significant negative relation between EMP_TREATMENT and READ_DIFFICULTY. Additionally, because the value of EMP_TREATMENT for some observations is zero, we re-estimate Equation (3) after removing these observations and still obtain consistent results. Results are not tabulated for the sake of brevity. Lastly, the values of variance inflation factor (VIF) are fairly small, suggesting that our analysis is not subject to multicollinearity issues.

In Panel B of Table 4, we present results of alternative regression analysis. Specifically, we keep the primary independent variable of interest (EMP_TREATMENT) and then gradually add one or two control variables, to examine the sensitivity of EMP_TREATMENT to control variables. For example, Column 1 of Panel B only include EMP_TREATMENT and industry/year indicators. Column 2 includes EMP_TREATMENT, SIZE, and industry/year indicators. Column 6 includes EMP_TREATMENT, SIZE, LEV, ROA, MTB, CFO, CAPINT, FIRMAGE, MABILITY, SITEM, and industry/year indicators. Column 9 includes all variables in the baseline regression model. As shown in Panel B, the coefficients on EMP_TREATMENT are all significant and negative, suggesting that the primary independent variable of interest is not sensitive to other variables in Equation (3).

Because we use a panel sample in our empirical analysis, it is common for variables to demonstrate serial correlation (i.e. autocorrelation). For example, the employee treatment score of a firm in year t may be correlated to that in year $t+1$. Hence, we perform the Durbin Watson (DW) test to examine whether our panel data is subject to major autocorrelation concerns. The DW statistic ranges from 0 to 4, with a value of 2.0 indicating zero autocorrelation. A rule of thumb is that DW statistic values in the range of 1.5–2.5 are relatively normal. Based on the results of Table 4, we find that the DW statistic value is 2.291, which shows that our regression output is not subject to major concerns about autocorrelation. We further examine if heteroscedasticity is present in our regression analysis. Heteroscedasticity refers to the unequal scatter of residuals at different levels of a variable in a regression model, which violates the assumptions of linear regression that residuals are equally scattered. Consistent with prior research, we perform the White test (proposed by Halbert White), which uses null and alternative hypotheses (Null hypothesis: Heteroscedasticity is not present. Alternative hypothesis: Heteroscedasticity is present). We find that the chi-square value of the White test is 146.54 with a p-value of 0.5417, indicating that we fail to reject the null hypothesis in the White test. This evidence implies that we do not have sufficient evidence to conclude that heteroscedasticity is present in our regression model.

5. Robustness Tests

5.1 Alternative Readability Measures

Prior studies have used a variety of alternative readability measures. For instance, Loughran and McDonald (2014) utilize the overall file size of a document to gauge its readability and report a strong correlation between the two factors (i.e. A larger file size implies that a document will be more challenging to read and comprehend). To measure readability, Li (2008) makes use of the Fog Index, using the following formula:

$$\text{Fog Index} = (\text{Average number of words in sentences} + \text{Percentage of words of three or more syllables}) \times 0.4 \quad [\text{Equation 4}]$$

The Fog Index indicates how many years of education are required for the typical individual to comprehend a text. For instance, a Fog Index score of 15 (19) indicates that the text demands 15 (19) years of study. The breakdown of the Fog values is as follows: FOG >18 means the text is unreadable; 14–18 means the text is difficult; 12–14 means the text is ideal; 10–12 means the text is acceptable; and 8–10 means childish. Therefore, a higher value of the Fog Index suggests low readability, similar to the Bog Index. We employ file size (labeled as FSIZE) and the Fog Index (labeled as FOG) as our alternate readability measurements due to the popularity of these two measures.

Using these two alternative readability measures, we re-estimate our baseline regression model and report results in Table 5. Column 1 shows that the coefficient on EMP_TREATMENT is 0.021 with a p-value of 1.70 where the dependent variable is FSIZE. Column 2 indicates that the coefficient on EMP_TREATMENT is 0.109 with a t-value of 3.19 when FOG is the dependent variable. Both columns suggest a significant negative relation between employee treatment and these two alternative readability measures, consistent with our primary findings. Hence, results of Table 5 indicate that our empirical specification is robust to alternative readability measures.

[insert Table 5 about here]

5.2 Alternative Employee Treatment Measure

Prior research uses a firm’s listing on Fortune’s “100 Best Companies to Work For” list as another proxy for employee treatment (Faleye and Trahan, 2011; Edmans, 2011; Bae et al., 2011; Chen et al., 2016). Fortune develops this list each year, based on employee surveys and firm responses. Employee surveys include questions on job satisfaction and employee’s attitude towards management. Companies provide responses to questions including corporate culture, management philosophy, demographic makeup, compensation, and benefit programs. Consistent with prior research, we replace EMP_TREATMENT with FORTUNE100, an indicator variable equals one if a firm is selected on Fortune’s “100 Best Companies to Work For” list in a given year and zero otherwise. We re-estimate the baseline model and report results in Table 6. The coefficient on FORTUNE100 is 1.256 with a t-value of 5.85, still indicating a significant negative relation between employee treatment and annual report reading difficulty. Hence, our primary findings are robust to this alternative measure of employee treatment.

[insert Table 6 about here]

5.3 Alternative Sample Periods

To investigate whether our primary findings are influenced by changes in macroeconomic factors or in firm-level factors over time, we divide our sample period into 3 periods, namely 1993–2001, 2001–2010, and 2011–2019, re-estimate the baseline regression model for each period, and report results in Table 7. Column 1, Column 2, and Column 3 report the coefficient on EMP_TREATMENT is 0.470 with a t-value of 2.22, 0.336 with a t-value of 3.52, and 0.125 with a t-value of 1.76, respectively. Collectively, results of Table 7 show that the significant negative relation between employee treatment and reading difficulty is robust across the different sample periods.

[insert Table 7 about here]

5.4 Alternative Economics Specifications

We re-estimate the baseline model using firm fixed effects regression and Fama-MacBeth regression. As shown in Table 8, Column 1 (Column 2) shows that the coefficient on EMP_TREATMENT is 0.133 with a t-value of 3.45 in firm fixed effects regression (0.275 with a t-value of 3.80 in Fama-MacBeth regression). Results of Table 8 still indicate a significant and negative relation between employee treatment and reading difficulty. Hence, our primary findings are robust to alternative economic specifications.

[insert Table 8 about here]

6. Endogeneity

6.1 Omitted Correlated Variables

Our primary results are based on a level analysis, which regress the level of READ_DIFFICULTY on the level of EMP_TREATMENT and of controls variables. To address concerns regarding omitted correlated variables, we perform a changes analysis to provide additional evidence that the differences in reading difficulty can be attributed to the differences in employee treatment. Specifically, we conduct a bivariate changes analysis, which regresses the changes in reading difficulty from year $t-1$ to year t (i.e. Δ READ_DIFFICULTY) on the corresponding changes in employee treatment from year $t-1$ and year t (i.e. Δ EMP_TREATMENT). In Column 1 of Table 9, we find that the coefficient on Δ READ_DIFFICULTY is 0.115 with a t-value of 3.44, indicating that the changes in reading difficulty can be attributed to the changes in employee

treatment. This evidence suggests that an increase (a decrease) in employee treatment can lead to a decrease (an increase) in reading difficulty, consistent with the primary findings in our study.

Prior research reports that bond credit rating is associated with readability (Bonsall et al., 2017). Additionally, we argue that environmental uncertainty may influence the relation between employee treatment and readability. Hence, we re-estimate the baseline regression model by including the above additional control variables and report results in Column 2 of Table 9. Column 2 reports that the coefficient on EMP_TREATMENT is still significant and negative, which suggests that our primary findings are robust to additional control variables. Taken together, results of Table 9 address concerns about omitted variables in our analysis.

[insert Table 9 about here]

6.2 Reverse Causality

Our study may be subject to endogeneity concerns such as reverse causality. For example, our study reports firms with difficult-to-read annual reports do not have a strong commitment to their employees. To reduce concerns about reverse causality, we perform a two-stage least squares regression analysis (2SLS), and report results in Table 10. In Stage 1, we estimate the individual employee treatment score (TREATMENT_INSTRUMENTAL) using the mean employee treatment score of firms in the same geographic area (i.e. the first 3 digits of the zip code) following Jiraporn et al. (2014). Specifically, Jiraporn et al. (2014) argue that companies engaging in employee relations and other CSR initiatives have a strong motivation to promote their CSR initiatives and make them as visible as possible. The CSR initiatives of such companies are therefore quite visible. Due to the visible nature of CSR activities, it is probable that firms would draw inspiration from their regional counterparts when developing and putting into practice their CSR initiatives. In Stage 2 of the 2SLS, we reestimate the baseline regression model (Equation 3) using TREATMENT_INSTRUMENTAL from Stage 1 of 2SLS.

Column 1 reports the results of the first stage, where we estimate the employee treatment (TREATMENT_INSTRUMENTAL) using TREATMENT_MEAN. The coefficient on TREATMENT_MEAN is 0.939 with a t-value of 24.20, suggesting that TREATMENT_MEAN is highly associated with TREATMENT_INSTRUMENTAL. The under-identification test results reveal that the Kleibergen-Paap rk LM stat. is 88.58 with a p-value of 0.000, suggesting that excluded instruments are relevant. Hence, we reject the null hypothesis that our model is under-identified. In the weak instrument test, we find that the Cragg-Donald F-stat. is 93.56, greater than the critical value of 16.38 in Stock and Yogo (2005), which suggests our instrumental variable in the first stage does not suffer from weak identification. Column 2 of Table 10 presents the results of the second stage of 2SLS, where we estimate our baseline regression model using the instrumental variable from the first stage (TREATMENT_INSTRUMENTAL) as the primary independent variable. The coefficient on TREATMENT_INSTRUMENTAL is 0.208 with a t-value of 4.16, still showing a significant negative relation between employee treatment and reading difficulty. This evidence suggests that firms with better employee treatment have annual reports that are easier to read and understand, consistent with our primary findings.

[insert Table 10 about here]

7. Conclusion

In this study, we examine the impact of employee treatment on the readability of annual reports. We use the Bog index to capture the level of reading difficulty. Using a large panel sample with 22,033 firm-year observations from 1993 to 2019, we document strong empirical evidence to

support a significant negative relation between employee treatment and annual report reading difficulty. Our primary findings appear robust after several robustness checks. Overall, our study reveals that annual reports of firms with better employee treatment are easier to read and understand. By demonstrating a strong influence of employee treatment on annual report readability, our study contributes to a more thorough knowledge of readability factors and our findings may be of relevance to accounting standard setters and investors.

Our study is not without limitations. Our sample is limited to observations where a full set of data is available. In addition, the notion of employee treatment is wide and multifaceted. Therefore, completely capturing the full extent of employee treatment is a difficult endeavor. Although we build our employee treatment proxy using the employee relations ratings from the MSCI's ESG database, alternative examination and measures of employee treatment could also be used. Employee treatment, for instance, may be assessed by interviewing employees directly or by adopting more explicit quantitative measures of employee treatment. Finally, while our study is limited to US data, our results may serve as a springboard for researchers, standard setters and investors in other jurisdictions to consider employee treatment and corporate reporting readability.

Based on the abovementioned limitations, future studies may use more-direct measures of employee treatment (e.g. survey employees directly) when they study the impact of employee treatment. We believe that more-direct measures of employee treatment may yield even stronger results. Next, future studies may explore the impact of employee treatment on annual report readability using private or international firms. This can increase the generalizability of our primary findings. Third, our study focuses on the link between employee treatment and annual report readability, however, employee treatment is closely related to other organizational level factors such as corporate culture and communication practices, which may also influence the readability of corporate disclosures. Hence, future studies may examine the interaction effect of employee treatment and other factors on annual report readability.

Appendix 1
Components of Employee Treatment
 (Source: www.msci.com)

| Item | Description |
|----------------------|---|
| Strength | |
| Union Relations | <i>“The organization has taken exceptional steps to treat its workforce fairly.”</i> |
| Cash Profit Sharing | <i>“The organization has a cash profit-sharing program through which it has recently made distributions to a majority of its workforce.”</i> |
| Employee Involvement | <i>“The organization strongly encourages employee involvement and/or ownership through stock options available to a majority of its employees. For example, gain sharing, stock ownership, sharing of financial information, or participation in management decision-making.”</i> |
| Retirement Benefits | <i>“The organization has a notably strong retirement benefits program.”</i> |
| Health and Safety | <i>“The organization has strong health and safety programs.”</i> |
| Other | <i>“The organization has strong employee relations initiatives not covered by other ratings.”</i> |
| Concern | |
| Union Relations | <i>“The organization has a history of notably poor union relations.”</i> |
| Health and Safety | <i>“The organization recently has either paid substantial fines or civil penalties for willful violations of employee health and safety standards, or has been otherwise involved in major health and safety controversies.”</i> |
| Workforce Reductions | <i>“The organization has made significant reductions in its workforces in recent years.”</i> |
| Retirement Benefits | <i>“The organization has either a substantially underfunded defined benefit pension plan, or an inadequate retirement benefits programs.”</i> |
| Other | <i>“The organization is involved in an employee relations controversy that is not covered by other ratings.”</i> |

Appendix 2
Variable Definitions

| Main Variables | | Definition |
|------------------------|---|--|
| READ_DIFFICULTY | = | The Bog Index by Bonsall, Leone, Miller, and Rennekamp (2017) to measure the readability (i.e., reading difficulty); |
| EMP_TREATMENT | = | employee treatment calculated as the difference between total strength of employee relations and total concerns of employee relations; |
| SIZE | = | The natural log of total firm assets (AT); |
| LEV | = | Leverage ratio, measure as the ratio of long-term liabilities (DLTT) to total assets (AT); |
| ROA | = | Profitability, measured as income before extraordinary items (IB) scaled by total assets (AT); |
| MTB | = | Market to book ratio, measured as market value of outstanding common shares [Outstanding common shares (CSHO) × price at fiscal year-end (PRCC_F)] divided by total book value of outstanding common shares (CEQ); |
| CFO | = | Cash flows from operating activities (OANCF) scaled by total assets (AT); |
| CAPINT | = | Capital expenditures (CAPX) scaled by total assets (AT); |
| FIRMAGE | = | The natural log of the number of years since the firm has been listed in the Compustat database; |
| MABILITY | = | Managerial ability ranks by Demerjian, Lev, and McVay (2012); |
| SITEM | = | Special items (SPI) scaled by total assets (AT); |
| MER&ACQ | = | An indicator variable that equals one if a firm engages in merger & acquisition transactions and otherwise zero; |
| DIS_ACC | = | The absolute value of discretionary accruals using performance-matched modified Jones model; |
| LOSS | = | An indicator variable that equals one if a firm reports a loss otherwise zero; |
| SEGMENT | = | The natural log of the number of business segments; |
| BIG4 | = | An indicator variable that equals one if a firm uses a Big 4 accounting firm as their auditor otherwise zero; |
| CGOV | = | employee treatment calculated as the difference between total strength of corporate governance and total concerns of corporate governance; |
| Other Variables | | |
| FILESIZE | = | The natural log of the gross file size of 10-K reports by Loughran and McDonald (2011); |
| FOG | = | The Fog Reading Index; |
| FORTUNE100 | = | An indicator variable equals one if a firm is selected on Fortune’s “100 Best Companies to Work For” list in a given year and zero otherwise; |
| BONDRATING | = | S&Ps’ bond credit ratings; |

| | | |
|------------|---|--|
| VOLATILITY | = | Volatility of sales (SALE) in the prior five years, measured as the variances in sales following Ghosh and Olsen (2009); |
|------------|---|--|

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Table 1
Employee Treatment and Annual Report Readability
Sample Selection and Distribution

Panel A: Sample Selection Process

| Full Sample | Observations |
|---|--------------|
| Employee Treatment Dataset (1993-2019) | 71,164 |
| Less: Observations lost in merging with the readability dataset | 26,377 |
| Less: Observations with insufficient data to construct independent variable and control variables | 22,754 |
| Number of Observations | 22,033 |
| Number of Unique Firms | 2,498 |

Panel B: Sample Distribution by Fiscal Year

| Year | Number of Observations | Percent | Cumulative Percent |
|------|------------------------|---------|--------------------|
| 1993 | 140 | 0.64% | 0.64% |
| 1994 | 123 | 0.56% | 1.19% |
| 1995 | 207 | 0.94% | 2.13% |
| 1996 | 225 | 1.02% | 3.15% |
| 1997 | 240 | 1.09% | 4.24% |
| 1998 | 243 | 1.10% | 5.35% |
| 1999 | 226 | 1.03% | 6.37% |
| 2000 | 232 | 1.05% | 7.43% |
| 2001 | 418 | 1.90% | 9.32% |
| 2002 | 423 | 1.92% | 11.24% |
| 2003 | 1,156 | 5.25% | 16.49% |
| 2004 | 1,204 | 5.46% | 21.95% |
| 2005 | 1,186 | 5.38% | 27.34% |
| 2006 | 1,214 | 5.51% | 32.85% |
| 2007 | 1,190 | 5.40% | 38.25% |
| 2008 | 1,291 | 5.86% | 44.11% |
| 2009 | 1,350 | 6.13% | 50.23% |
| 2010 | 1,377 | 6.25% | 56.48% |
| 2011 | 1,316 | 5.97% | 62.46% |
| 2012 | 1,290 | 5.85% | 68.31% |
| 2013 | 1,163 | 5.28% | 73.59% |
| 2014 | 1,128 | 5.12% | 78.71% |
| 2015 | 1,034 | 4.69% | 83.40% |
| 2016 | 999 | 4.53% | 87.94% |
| 2017 | 921 | 4.18% | 92.12% |
| 2018 | 914 | 4.15% | 96.26% |
| 2019 | 823 | 3.74% | 100.00% |
| | 22,033 | 100.00% | |

Table 1
Employee Treatment and Annual Report Readability
Sample Selection and Distribution

Panel C: Sample Distribution by Industry

| SIC | Description | Obs. | % | SIC | Description | Obs. | % |
|-----|-----------------------------|-------|--------|-----|------------------------------|-------|--------|
| 1 | Agricultural Crops | 28 | 0.13% | 41 | Local/Suburban Transit | 4 | 0.02% |
| 2 | Agricultural Livestock | 13 | 0.06% | 42 | Motor Freight Transportation | 216 | 0.98% |
| 10 | Metal Mining | 47 | 0.21% | 44 | Water Transportation | 67 | 0.30% |
| 12 | Coal Mining | 27 | 0.12% | 45 | Transportation By Air | 242 | 1.10% |
| 13 | Oil & Gas Extraction | 811 | 3.68% | 46 | Pipelines | 4 | 0.02% |
| 14 | Mining | 92 | 0.42% | 47 | Transportation Services | 96 | 0.44% |
| 15 | Building Construction | 45 | 0.20% | 48 | Communications | 701 | 3.18% |
| 16 | Heavy Construction | 129 | 0.59% | 50 | Durable Goods Wholesale | 553 | 2.51% |
| 17 | Special Construction | 54 | 0.25% | 51 | Nondurable Goods Wholesale | 316 | 1.43% |
| 20 | Food | 665 | 3.02% | 52 | Building Materials | 78 | 0.35% |
| 21 | Tobacco | 51 | 0.23% | 53 | General Merchandise Stores | 208 | 0.94% |
| 22 | Textile Mill | 46 | 0.21% | 54 | Food Stores | 144 | 0.65% |
| 23 | Apparel | 197 | 0.89% | 55 | Automotive Dealers | 258 | 1.17% |
| 24 | Lumber | 157 | 0.71% | 56 | Apparel Stores | 334 | 1.52% |
| 25 | Furniture | 179 | 0.81% | 57 | Furniture Stores | 91 | 0.41% |
| 26 | Paper | 328 | 1.49% | 58 | Eating & Drinking Places | 408 | 1.85% |
| 27 | Printing | 245 | 1.11% | 59 | Miscellaneous Retail | 400 | 1.82% |
| 28 | Chemicals | 2,406 | 10.92% | 63 | Insurance Carriers | 7 | 0.03% |
| 29 | Petroleum Refining | 133 | 0.60% | 70 | Hotels | 46 | 0.21% |
| 30 | Rubber | 221 | 1.00% | 72 | Personal Services | 90 | 0.41% |
| 31 | Leather | 103 | 0.47% | 73 | Business Services | 2,866 | 13.01% |
| 32 | Stone Clay Glass | 99 | 0.45% | 75 | Auto Repair Services | 84 | 0.38% |
| 33 | Primary Metal | 333 | 1.51% | 78 | Motion Pictures | 97 | 0.44% |
| 34 | Fabricated Metal | 421 | 1.91% | 79 | Amusement | 145 | 0.66% |
| 35 | Industrial Machinery | 1,659 | 7.53% | 80 | Health Services | 454 | 2.06% |
| 36 | Electronic Equipment | 2,126 | 9.65% | 81 | Legal Services | 10 | 0.05% |
| 37 | Transportation Equipment | 850 | 3.86% | 82 | Educational Services | 109 | 0.49% |
| 38 | Measuring Instruments | 1,722 | 7.82% | 83 | Social Services | 17 | 0.08% |
| 39 | Miscellaneous Manufacturing | 156 | 0.71% | 87 | Engineering & Accounting | 450 | 2.04% |
| 40 | Railroad Transportation | 107 | 0.49% | 99 | Nonclassified Establishments | 88 | 0.40% |

In Panel A, we report the sample selection process. Our final sample consists of 22,033 firm-year observations from 1993 to 2019, representing 2,498 public companies in the United States. Panel B presents sample distribution by fiscal year. Panel C presents sample distribution by industry, based on the first two digits of the Standard Industrial Classification (SIC) code.

Table 2
Employee Treatment and Annual Report Readability
Sample Descriptive Statistics

| Variable | Observations | Mean | Std Dev | 25th Pctl | 50th Pctl | 75th Pctl |
|-----------------|--------------|--------|---------|-----------|-----------|-----------|
| READ_DIFFICULTY | 22,033 | 85.761 | 7.658 | 81.000 | 86.000 | 91.000 |
| EMP_TREATMENT | 22,033 | 0.065 | 0.921 | 0.000 | 0.000 | 1.000 |
| SIZE | 22,033 | 7.207 | 1.612 | 6.018 | 7.085 | 8.276 |
| LEV | 22,033 | 0.188 | 0.186 | 0.006 | 0.157 | 0.294 |
| ROA | 22,033 | 0.030 | 0.133 | 0.012 | 0.051 | 0.089 |
| MTB | 22,033 | 3.531 | 5.758 | 1.595 | 2.543 | 4.126 |
| CFO | 22,033 | 0.093 | 0.107 | 0.057 | 0.100 | 0.147 |
| CAPINT | 22,033 | 0.050 | 0.053 | 0.018 | 0.033 | 0.062 |
| FIRMGAGE | 22,033 | 3.082 | 0.669 | 2.565 | 3.091 | 3.664 |
| MABILITY | 22,033 | 0.563 | 0.294 | 0.300 | 0.600 | 0.800 |
| SITEM | 22,033 | -0.014 | 0.051 | -0.012 | -0.002 | 0.000 |
| MER_ACQ | 22,033 | 0.494 | 0.500 | 0.000 | 0.000 | 1.000 |
| DIS_ACC | 22,033 | 0.057 | 0.059 | 0.018 | 0.041 | 0.075 |
| LOSS | 22,033 | 0.209 | 0.406 | 0.000 | 0.000 | 0.000 |
| SEGMENT | 22,033 | 1.760 | 1.142 | 0.693 | 1.609 | 2.398 |
| BIG4 | 22,033 | 0.893 | 0.309 | 1.000 | 1.000 | 1.000 |
| CGOV | 22,033 | -0.181 | 0.626 | -1.000 | 0.000 | 0.000 |

This table reports the number of observations, pooled means, standard deviations, 25th percentile, median, and 75th percentile of the dependent variable (i.e., reading difficulty), independent variable of interest (i.e., employee treatment), and various control variables. The sample consists of 22,033 firm-year observations from 1993 to 2019. All continuous variables are winsorized at the 1% and 99% percentiles. Please refer to Appendix 1 for detailed variable definitions.

Table 3
Employee Treatment and Annual Report Readability
Correlation Matrix

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|-------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| 1 READ_DIFFICULTY | | -0.01 <i>0.09</i> | 0.01 <i>0.13</i> | 0.05 <i><.0001</i> | -0.23 <i><.0001</i> | 0.01 <i>0.11</i> | -0.22 <i><.0001</i> | -0.28 <i><.0001</i> | -0.08 <i><.0001</i> | -0.04 <i><.0001</i> | -0.16 <i><.0001</i> | 0.09 <i><.0001</i> | 0.12 <i><.0001</i> | 0.21 <i><.0001</i> | 0.02 <i>0.01</i> | 0.01 <i>0.05</i> | -0.01 <i>0.08</i> |
| 2 EMP_TREATMENT | -0.02 <i>0.01</i> | | 0.37 <i><.0001</i> | 0.08 <i><.0001</i> | 0.10 <i><.0001</i> | 0.09 <i><.0001</i> | 0.12 <i><.0001</i> | 0.06 <i><.0001</i> | 0.21 <i><.0001</i> | 0.14 <i><.0001</i> | -0.04 <i><.0001</i> | 0.03 <i><.0001</i> | -0.01 <i>0.46</i> | -0.07 <i><.0001</i> | 0.13 <i><.0001</i> | 0.12 <i><.0001</i> | -0.04 <i><.0001</i> |
| 3 SIZE | 0.00 <i>0.65</i> | 0.39 <i><.0001</i> | | 0.44 <i><.0001</i> | 0.11 <i><.0001</i> | 0.02 <i>0.00</i> | 0.10 <i><.0001</i> | 0.10 <i><.0001</i> | 0.43 <i><.0001</i> | 0.10 <i><.0001</i> | -0.08 <i><.0001</i> | 0.21 <i><.0001</i> | -0.20 <i><.0001</i> | -0.22 <i><.0001</i> | 0.38 <i><.0001</i> | 0.29 <i><.0001</i> | -0.18 <i><.0001</i> |
| 4 LEV | 0.08 <i><.0001</i> | 0.03 <i><.0001</i> | 0.32 <i><.0001</i> | | -0.20 <i><.0001</i> | -0.09 <i><.0001</i> | -0.13 <i><.0001</i> | 0.09 <i><.0001</i> | 0.16 <i><.0001</i> | -0.13 <i><.0001</i> | -0.15 <i><.0001</i> | 0.10 <i><.0001</i> | -0.15 <i><.0001</i> | 0.03 <i><.0001</i> | 0.22 <i><.0001</i> | 0.12 <i><.0001</i> | -0.03 <i><.0001</i> |
| 5 ROA | -0.23 <i><.0001</i> | 0.09 <i><.0001</i> | 0.22 <i><.0001</i> | -0.12 <i><.0001</i> | | 0.34 <i><.0001</i> | 0.66 <i><.0001</i> | 0.15 <i><.0001</i> | 0.15 <i><.0001</i> | 0.28 <i><.0001</i> | 0.33 <i><.0001</i> | 0.01 <i>0.05</i> | -0.02 <i>0.00</i> | -0.69 <i><.0001</i> | 0.04 <i><.0001</i> | 0.01 <i>0.41</i> | -0.01 <i>0.24</i> |
| 6 MTB | 0.03 <i><.0001</i> | 0.04 <i><.0001</i> | -0.01 <i>0.30</i> | -0.04 <i><.0001</i> | 0.03 <i><.0001</i> | | 0.29 <i><.0001</i> | 0.03 <i><.0001</i> | -0.04 <i><.0001</i> | 0.20 <i><.0001</i> | 0.08 <i><.0001</i> | -0.01 <i>0.28</i> | 0.15 <i><.0001</i> | -0.12 <i><.0001</i> | -0.09 <i><.0001</i> | 0.04 <i><.0001</i> | 0.02 <i>0.00</i> |
| 7 CFO | -0.26 <i><.0001</i> | 0.12 <i><.0001</i> | 0.20 <i><.0001</i> | -0.09 <i><.0001</i> | 0.70 <i><.0001</i> | 0.04 <i><.0001</i> | | 0.32 <i><.0001</i> | 0.06 <i><.0001</i> | 0.26 <i><.0001</i> | 0.14 <i><.0001</i> | -0.03 <i><.0001</i> | 0.13 <i><.0001</i> | -0.43 <i><.0001</i> | -0.04 <i><.0001</i> | 0.02 <i>0.01</i> | -0.02 <i>0.01</i> |
| 8 CAPINT | -0.21 <i><.0001</i> | 0.01 <i>0.09</i> | 0.05 <i><.0001</i> | 0.08 <i><.0001</i> | 0.05 <i><.0001</i> | -0.01 <i>0.07</i> | 0.24 <i><.0001</i> | | 0.02 <i>0.00</i> | 0.04 <i><.0001</i> | 0.10 <i><.0001</i> | -0.13 <i><.0001</i> | -0.09 <i><.0001</i> | -0.11 <i><.0001</i> | -0.01 <i>0.25</i> | 0.02 <i>0.00</i> | 0.02 <i>0.01</i> |
| 9 FIRMAGE | -0.08 <i><.0001</i> | 0.20 <i><.0001</i> | 0.44 <i><.0001</i> | 0.08 <i><.0001</i> | 0.18 <i><.0001</i> | -0.04 <i><.0001</i> | 0.11 <i><.0001</i> | -0.06 <i><.0001</i> | | 0.05 <i><.0001</i> | -0.02 <i>0.03</i> | 0.08 <i><.0001</i> | -0.22 <i><.0001</i> | -0.20 <i><.0001</i> | 0.52 <i><.0001</i> | 0.05 <i><.0001</i> | -0.02 <i>0.00</i> |
| 10 MABILITY | -0.05 <i><.0001</i> | 0.16 <i><.0001</i> | 0.12 <i><.0001</i> | -0.12 <i><.0001</i> | 0.21 <i><.0001</i> | 0.10 <i><.0001</i> | 0.23 <i><.0001</i> | 0.07 <i><.0001</i> | 0.05 <i><.0001</i> | | 0.06 <i><.0001</i> | -0.06 <i><.0001</i> | 0.13 <i><.0001</i> | -0.15 <i><.0001</i> | 0.00 <i>0.73</i> | 0.03 <i><.0001</i> | -0.04 <i><.0001</i> |
| 11 SITEM | -0.07 <i><.0001</i> | 0.01 <i>0.18</i> | 0.04 <i><.0001</i> | -0.04 <i><.0001</i> | 0.53 <i><.0001</i> | 0.03 <i><.0001</i> | 0.11 <i><.0001</i> | 0.05 <i><.0001</i> | 0.05 <i><.0001</i> | 0.03 <i><.0001</i> | | -0.12 <i><.0001</i> | -0.04 <i><.0001</i> | -0.28 <i><.0001</i> | -0.08 <i><.0001</i> | -0.06 <i><.0001</i> | 0.04 <i><.0001</i> |
| 12 MER_ACQ | 0.08 <i><.0001</i> | 0.04 <i><.0001</i> | 0.20 <i><.0001</i> | 0.05 <i><.0001</i> | 0.08 <i><.0001</i> | -0.02 <i>0.00</i> | 0.04 <i><.0001</i> | -0.17 <i><.0001</i> | 0.08 <i><.0001</i> | -0.06 <i><.0001</i> | -0.03 <i><.0001</i> | | -0.03 <i><.0001</i> | -0.10 <i><.0001</i> | 0.19 <i><.0001</i> | 0.06 <i><.0001</i> | -0.06 <i><.0001</i> |
| 13 DIS_ACC | 0.12 <i><.0001</i> | -0.01 <i>0.05</i> | -0.22 <i><.0001</i> | -0.10 <i><.0001</i> | -0.20 <i><.0001</i> | 0.12 <i><.0001</i> | -0.05 <i><.0001</i> | -0.03 <i><.0001</i> | -0.23 <i><.0001</i> | 0.12 <i><.0001</i> | -0.16 <i><.0001</i> | -0.06 <i><.0001</i> | | 0.15 <i><.0001</i> | -0.17 <i><.0001</i> | -0.05 <i><.0001</i> | -0.03 <i>0.00</i> |
| 14 LOSS | 0.21 <i><.0001</i> | -0.08 <i><.0001</i> | -0.22 <i><.0001</i> | 0.09 <i><.0001</i> | -0.67 <i><.0001</i> | 0.01 <i>0.36</i> | -0.48 <i><.0001</i> | -0.05 <i><.0001</i> | -0.20 <i><.0001</i> | -0.15 <i><.0001</i> | -0.34 <i><.0001</i> | -0.10 <i><.0001</i> | 0.18 <i><.0001</i> | | -0.13 <i><.0001</i> | -0.04 <i><.0001</i> | 0.01 <i>0.19</i> |
| 15 SEGMENT | 0.02 <i>0.00</i> | 0.12 <i><.0001</i> | 0.36 <i><.0001</i> | 0.13 <i><.0001</i> | 0.10 <i><.0001</i> | -0.06 <i><.0001</i> | 0.05 <i><.0001</i> | -0.07 <i><.0001</i> | 0.45 <i><.0001</i> | 0.01 <i>0.30</i> | 0.01 <i>0.08</i> | 0.17 <i><.0001</i> | -0.17 <i><.0001</i> | -0.12 <i><.0001</i> | | 0.06 <i><.0001</i> | -0.04 <i><.0001</i> |
| 16 BIG4 | 0.01 <i>0.25</i> | 0.11 <i><.0001</i> | 0.28 <i><.0001</i> | 0.10 <i><.0001</i> | 0.02 <i>0.00</i> | 0.02 <i>0.01</i> | 0.03 <i><.0001</i> | -0.03 <i><.0001</i> | 0.05 <i><.0001</i> | 0.03 <i><.0001</i> | -0.01 <i>0.13</i> | 0.06 <i><.0001</i> | -0.06 <i><.0001</i> | -0.04 <i><.0001</i> | 0.07 <i><.0001</i> | | -0.08 <i><.0001</i> |
| 17 CGOV | -0.02 <i>0.02</i> | -0.02 <i>0.01</i> | -0.18 <i><.0001</i> | -0.02 <i>0.00</i> | -0.01 <i>0.29</i> | 0.01 <i>0.05</i> | -0.02 <i>0.00</i> | 0.03 <i><.0001</i> | -0.03 <i><.0001</i> | -0.04 <i><.0001</i> | 0.04 <i><.0001</i> | -0.06 <i><.0001</i> | -0.01 <i>0.06</i> | 0.01 <i>0.27</i> | -0.04 <i><.0001</i> | -0.08 <i><.0001</i> | |

This table reports the Pearson correlations (below the diagonal) and the Spearman correlations (above the diagonal) for key variables used in our study over the period of 1993-2019. For each pair of variables, the correlation coefficients and related (two-tailed) p-values are provided. All continuous variables are winsorized at the 1% and 99% percentiles before the correlation analysis. Please refer to Appendix 1 for detailed variable definitions.

Table 4
Employee Treatment and Annual Report Readability
Main Results

Panel A: Main Results

| | Two-way Clustered Errors OLS | | | |
|-------------------------|--------------------------------------|---------|----------|-------|
| | Dependent Variable = READ DIFFICULTY | | | |
| Parameter | Estimate | t Value | Pr > t | VIF |
| Intercept | 90.846*** | 195.91 | <.0001 | 0.000 |
| EMP_TREATMENT | -0.203*** | -3.88 | 0.000 | 1.303 |
| SIZE | 0.418*** | 12.17 | <.0001 | 2.230 |
| LEV | 1.338*** | 5.86 | <.0001 | 1.382 |
| ROA | -2.634*** | -4.65 | <.0001 | 4.655 |
| MTB | -0.011 | -1.29 | 0.197 | 1.077 |
| CFO | -5.972*** | -10.49 | <.0001 | 3.004 |
| CAPINT | -7.185*** | -7.61 | <.0001 | 1.716 |
| FIRMAGE | -1.176*** | -16.86 | <.0001 | 1.677 |
| MABILITY | 0.456*** | 3.35 | 0.001 | 1.207 |
| SITEM | 1.415 | 1.53 | 0.127 | 1.863 |
| MER_ACQ | 0.860*** | 10.85 | <.0001 | 1.193 |
| DIS_ACC | 2.539*** | 3.71 | 0.000 | 1.293 |
| LOSS | 0.836*** | 6.85 | <.0001 | 1.898 |
| SEGMENT | 0.448*** | 11.55 | <.0001 | 1.441 |
| BIG4 | 0.905*** | 7.51 | <.0001 | 1.158 |
| CGOV | -0.518*** | -8.15 | <.0001 | 1.267 |
| Industry Indicators | | | Included | |
| Year Indicators | | | Included | |
| Observations | | | 22,033 | |
| Adjusted R ² | | | 0.5154 | |

Panel B: Alternative Regression Analysis

| Parameter | Column 1 Estimate | Column 2 Estimate | Column 3 Estimate | Column 4 Estimate | Column 5 Estimate | Column 6 Estimate | Column 7 Estimate | Column 8 Estimate | Column 9 Estimate |
|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| EMP_TREATMENT | -0.427*** (-4.05) | -0.366*** (-6.78) | -0.301*** (-5.64) | -0.263*** (-4.95) | -0.225*** (-4.28) | -0.242*** (-4.59) | -0.216*** (-4.14) | -0.222*** (-4.24) | -0.203*** (-3.88) |
| SIZE | | 0.452*** (15.62) | 0.504*** (16.71) | 0.511*** (17.14) | 0.646*** (20.41) | 0.641*** (20.18) | 0.542*** (16.22) | 0.536*** (16.36) | 0.418*** (12.17) |
| LEV | | | 1.822*** (7.86) | 1.658*** (7.24) | 1.485*** (6.53) | 1.559*** (6.80) | 1.441*** (6.29) | 1.361*** (5.95) | 1.338*** (5.86) |
| ROA | | | 7.621*** (22.16) | 3.773*** (9.56) | 3.948*** (9.92) | 4.21*** (7.87) | 2.659*** (4.66) | 2.885*** (5.06) | 2.634*** (4.65) |
| MTB | | | | 0.004 (0.44) | 0.007 (0.87) | 0.009 (1.06) | 0.011 (1.30) | 0.01 (1.18) | 0.011 (1.29) |
| CFO | | | | 7.037*** (13.88) | 5.929*** (11.48) | 5.984*** (10.43) | 6.161*** (10.77) | 5.773*** (10.10) | 5.972*** (10.49) |
| CAPINT | | | | | 8.672*** (9.24) | 8.797*** (9.30) | 7.554*** (7.98) | 7.608*** (8.07) | 7.185*** (7.61) |
| FIRMAGE | | | | | 1.001*** (15.29) | 1.001*** (15.26) | 0.953*** (14.45) | 1.214*** (17.35) | 1.176*** (16.86) |
| MABILITY | | | | | | 0.446*** (3.26) | 0.482*** (3.51) | 0.474*** (3.47) | 0.456*** (3.35) |
| SITEM | | | | | | 0.396 (0.41) | 1.264 (1.36) | 1.423 (1.53) | 1.415 (1.53) |
| MER_ACQ | | | | | | | 0.923*** (11.62) | 0.858*** (10.80) | 0.86*** (10.85) |
| DIS_ACC | | | | | | | 2.309*** (3.35) | 2.525*** (3.67) | 2.539*** (3.71) |
| LOSS | | | | | | | | 0.846*** (6.91) | 0.836*** (6.85) |
| SEGMENT | | | | | | | | 0.444*** (11.47) | 0.448*** (11.55) |
| BIG4 | | | | | | | | | 0.905*** (7.51) |
| CGOV | | | | | | | | | 0.518*** (8.15) |
| Intercept | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Industry Indicators | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Year Indicators | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Observations | 22,033 | 22,033 | 22,033 | 22,033 | 22,033 | 22,033 | 22,033 | 22,033 | 22,033 |
| Adjusted R ² | 0.4867 | 0.4751 | 0.4939 | 0.4982 | 0.5052 | 0.5055 | 0.5112 | 0.5128 | 0.5154 |

Panel A of this table reports the results of our baseline regression model using two-way clustered standard errors (by firm and year) OLS regression. The baseline model is as follows.

$$READ_DIFFICULTY = \beta_0 + \beta_1 \times EMP_TREATMENT + \beta_x \times \text{Control Variables} + \text{Industry \& Year Dummies} + \varepsilon$$

Panel B of this table report results of alternative regression analysis. The continuous variables in the baseline regression model are winsorized at the 1 and 99% percentiles each year before entering the regression analysis. t-values are included in parentheses. *, **, and *** denote significance at the 10, 5 and 1 percent (two-tailed) confidence levels, respectively. Please refer to Appendix 1 for detailed variable definitions.

Table 5
Employee Treatment and Annual Report Readability
Alternative Readability Measures

| Parameter | Column 1 | | Column 2 | |
|-------------------------|-------------------|---------|------------------|---------|
| | Dep. Var. = FSIZE | | Dep. Var. = FOG | |
| | Estimate | t Value | Estimate | t Value |
| Intercept | 15.076*** | 175.60 | 15.169*** | 30.54 |
| EMP_TREATMENT | -0.021* | -1.70 | -0.109*** | -3.19 |
| SIZE | 0.182*** | 24.62 | 0.102*** | 4.47 |
| LEV | 0.144*** | 3.40 | -0.173 | -1.07 |
| ROA | -0.263*** | -2.94 | -0.985** | -2.54 |
| MTB | -0.002** | -2.00 | 0.000 | -0.07 |
| CFO | -0.221** | -2.34 | -0.161 | -0.38 |
| CAPINT | -0.305* | -1.87 | -0.747 | -1.45 |
| FIRMAGE | -0.020 | -1.44 | -0.245*** | -4.74 |
| MABILITY | 0.094*** | 3.66 | 0.130 | 1.45 |
| SITEM | 0.131 | 0.82 | 1.198** | 2.24 |
| MER_ACQ | 0.019 | 1.23 | 0.007 | 0.12 |
| DIS_ACC | 0.041 | 0.37 | 1.034** | 2.30 |
| LOSS | 0.060*** | 2.98 | 0.101 | 1.19 |
| SEGMENT | 0.034*** | 4.27 | 0.039 | 1.50 |
| BIG4 | 0.021 | 0.82 | 0.402*** | 2.92 |
| CGOV | 0.028** | 2.10 | -0.034 | -0.88 |
| Industry Indicators | Included | | Included | |
| Year Indicators | Included | | Included | |
| Observations | 6,593 | | 10,676 | |
| Adjusted R ² | 0.8044 | | 0.0992 | |

This table presents the results of the baseline regression model using two alternative measures of annual report readability, namely FSIZE and FOG. The model is as follows. $FSIZE$ or $FOG = \beta_0 + \beta_1 \times EMP_TREATMENT + \beta_x \times \text{Control Variables} + \text{Industry Indicators} + \text{Year Indicators} + \varepsilon$

The continuous variables in the baseline regression model are winsorized at the 1% and 99% percentiles each year before entering the regression analysis. *, **, and *** denote significance at the 10, 5 and 1 percent (two-tailed) confidence levels, respectively. Detailed variable definitions are provided in Appendix 1.

Table 6
Employee Treatment and Annual Report Readability
Alternative Measure of Employee Treatment

| Parameter | Dep. Var. = READ DIFFICULTY | |
|-------------------------|--------------------------------|---------|
| | Estimate | t Value |
| Intercept | 90.500*** | 192.94 |
| FORTUNE100 | -1.256*** | -5.85 |
| SIZE | 0.480*** | 13.17 |
| LEV | 1.204*** | 5.22 |
| ROA | -2.718*** | -4.79 |
| MTB | -0.011 | -1.28 |
| CFO | -6.107*** | -10.75 |
| CAPINT | -7.395*** | -7.84 |
| FIRMAGE | -1.180*** | -16.94 |
| MABILITY | 0.469*** | 3.43 |
| SITEM | 1.522 | 1.64 |
| MER_ACQ | 0.852*** | 10.75 |
| DIS_ACC | 2.522*** | 3.69 |
| LOSS | 0.836*** | 6.85 |
| SEGMENT | 0.461*** | 11.87 |
| BIG4 | 0.846*** | 7.01 |
| CGOV | -0.503*** | -7.92 |
| Industry Indicators | Included | |
| Year Indicators | Included | |
| Observations | 22,033 | |
| Adjusted R ² | 0.5159 | |

This table presents the results of the baseline regression model using an alternative measure of employee treatment, namely FORTUNE100. The model is as follows. $READ_DIFFICULTY = \beta_0 + \beta_1 \times FORTUNE100 + \beta_x \times \text{Control Variables} + \text{Industry Indicators} + \text{Year Indicators} + \varepsilon$

The continuous variables in the baseline regression model are winsorized at the 1% and 99% percentiles each year before entering the regression analysis. *, **, and *** denote significance at the 10, 5 and 1 percent (two-tailed) confidence levels, respectively. Detailed variable definitions are provided in Appendix 1.

Table 7
Employee Treatment and Annual Report Readability
Alternative Sample Periods

| Parameter | Dependent Variable = READ_DIFFICULTY | | | | | |
|-------------------------|--------------------------------------|---------|------------------|---------|----------------|---------|
| | Column 1 | | Column 2 | | Column 3 | |
| | 1993-2001 | | 2002-2010 | | 2011-2019 | |
| | Estimate | t Value | Estimate | t Value | Estimate | t Value |
| Intercept | 76.103*** | 45.43 | 79.364*** | 164.00 | 81.985*** | 169.87 |
| EMP_TREATMENT | -0.470** | -2.22 | -0.336*** | -3.52 | -0.125* | -1.76 |
| SIZE | 0.133 | 0.92 | 0.360*** | 7.18 | 0.735*** | 13.50 |
| LEV | 3.109** | 2.50 | 0.245 | 0.79 | 3.768*** | 10.16 |
| ROA | 2.699 | 0.83 | -3.909*** | -5.14 | -1.911** | -1.97 |
| MTB | 0.064 | 1.50 | -0.042*** | -2.92 | 0.001 | 0.12 |
| CFO | -8.556** | -2.51 | -3.727*** | -5.08 | -6.858*** | -6.98 |
| CAPINT | -9.861** | -2.34 | -9.162*** | -7.14 | -10.729*** | -7.69 |
| FIRMAGE | -3.038*** | -8.75 | -0.723*** | -7.53 | -0.822*** | -7.25 |
| MABILITY | -1.477** | -2.59 | 1.376*** | 7.38 | -0.897*** | -4.01 |
| SITEM | -4.414 | -0.86 | 2.282* | 1.96 | -1.133 | -0.47 |
| MER_ACQ | 1.868*** | 5.60 | 1.079*** | 9.79 | 0.289** | 2.25 |
| DIS_ACC | 19.619*** | 5.28 | 2.026** | 2.41 | 1.862 | 1.47 |
| LOSS | 1.827*** | 3.19 | 0.960*** | 5.80 | 0.647*** | 3.10 |
| SEGMENT | 1.091*** | 5.47 | 0.384*** | 7.21 | 0.424*** | 6.74 |
| BIG4 | 4.792*** | 3.94 | 0.375** | 2.19 | 0.228 | 1.25 |
| CGOV | -1.945*** | -6.88 | -0.521*** | -6.97 | 0.775*** | 6.40 |
| Industry Indicators | Included | | Included | | Included | |
| Year Indicators | Included | | Included | | Included | |
| Observations | 2,054 | | 10,391 | | 9,588 | |
| Adjusted R ² | 0.3433 | | 0.3972 | | 0.3600 | |

This table presents the results of the baseline regression model for 3 different time periods, namely 1993-2001, 2002-2010, and 2011-2019. The baseline model is as follows. $DIFF_DIFFICULTY = \beta_0 + \beta_1 \times EMP_TREATMENT + \beta_x \times \text{Control Variables} + \text{Industry Indicators} + \text{Year Indicators} + \epsilon$

The continuous variables in the baseline regression model are winsorized at the 1% and 99% percentiles each year before entering the regression analysis. *, **, and *** denote significance at the 10, 5 and 1 percent (two-tailed) confidence levels, respectively. Detailed variable definitions are provided in Appendix 1.

Table 8
Employee Treatment and Annual Report Readability
Alternative Economic Specifications

| Parameter | Dependent Variable = READ DIFFICULTY | | | |
|-------------------------|--------------------------------------|---------|-------------------------|---------|
| | Column 1 | | Column 2 | |
| | Firm Fixed Effects Regression | | Fama-MacBeth Regression | |
| | Estimate | t Value | Estimate | t Value |
| Intercept | | | 80.902*** | 58.73 |
| EMP_TREATMENT | -0.133*** | -3.45 | -0.275*** | -3.80 |
| SIZE | 0.865*** | 14.00 | 0.273*** | 4.58 |
| LEV | 1.723*** | 7.47 | 2.154*** | 4.56 |
| ROA | 0.110 | 0.26 | -3.237** | -2.41 |
| MTB | 0.002 | 0.35 | -0.010 | -0.27 |
| CFO | -1.294*** | -3.01 | -5.123*** | -5.86 |
| CAPINT | -2.703*** | -3.21 | -6.496*** | -2.87 |
| FIRIMAGE | -0.168 | -0.89 | -1.565*** | -8.62 |
| MABILITY | 0.033 | 0.29 | 0.123 | 0.45 |
| SITEM | -2.209*** | -3.26 | -1.490 | -0.34 |
| MER_ACQ | 0.381*** | 6.54 | 0.944*** | 7.63 |
| DIS_ACC | -0.109 | -0.21 | 8.892*** | 2.96 |
| LOSS | 0.362*** | 4.23 | 1.056*** | 3.94 |
| SEGMENT | 0.191*** | 4.59 | 0.668*** | 5.62 |
| BIG4 | 0.318* | 1.86 | 1.944*** | 4.05 |
| CGOV | -0.100** | -2.19 | -0.630*** | -4.12 |
| Industry Indicators | Not included | | Included | |
| Year Indicators | Included | | Included | |
| Observations | 22,033 | | 10,676 | |
| Adjusted R ² | 0.8469 | | 0.4118 | |

This table presents the results of estimating the baseline regression model using two alternative economic specifications, namely firm fixed effects regression and Fama-MacBeth Regression. The baseline model is as follows.
 $DIFF_DIFFICULTY = \beta_0 + \beta_1 \times EMP_TREATMENT + \beta_x \times \text{Control Variables} + \text{Industry Indicators} + \text{Year Indicators} + \varepsilon$

The continuous variables in the baseline regression model are winsorized at the 1% and 99% percentiles each year before entering the regression analysis. *, **, and *** denote significance at the 10, 5 and 1 percent (two-tailed) confidence levels, respectively. Detailed variable definitions are provided in Appendix 1.

Table 9
Employee Treatment and Annual Report Readability
Endogeneity Tests

| Column 1 | | | Column 2 | | |
|--------------------------------------|------------------|---------|------------------------------|-----------------|---------|
| Changes Analysis | | | Additional Control Variables | | |
| Dep. Var. = Δ READ DIFFICULTY | | | Dep. Var. = READ DIFFICULTY | | |
| Parameter | Estimate | t Value | Parameter | Estimate | t Value |
| Intercept | 1.792*** | 10.61 | Intercept | 85.708** | 105.44 |
| Δ EMP_TREATMENT | -0.115*** | -3.44 | EMP_TREATMENT | -0.176** | -2.48 |
| Δ SIZE | 1.027*** | 8.88 | SIZE | 0.872*** | 11.05 |
| Δ LEV | 1.381*** | 4.53 | LEV | -1.817*** | -3.82 |
| Δ ROA | -0.005 | -1.06 | ROA | 0.987 | 0.79 |
| Δ MTB | -0.185 | -0.57 | MTB | -0.007 | -0.62 |
| Δ CFO | -0.223 | -0.70 | CFO | -4.580*** | -3.56 |
| Δ CAPINT | -1.450** | -2.13 | CAPINT | -1.844 | -1.09 |
| Δ FIRMAGE | 2.712*** | 4.66 | FIRMAGE | -0.825*** | -6.48 |
| Δ MABILITY | 0.002* | 1.88 | MABILITY | 0.688*** | 2.99 |
| Δ SITEM | -1.576*** | -3.30 | SITEM | -2.480 | -1.28 |
| Δ MER_ACQ | 0.198*** | 4.47 | MER_ACQ | 1.184*** | 8.77 |
| Δ DIS_ACC | 0.078 | 0.23 | DIS_ACC | 1.940 | 1.27 |
| Δ LOSS | 0.180*** | 2.72 | LOSS | 0.850*** | 3.76 |
| Δ SEGMENT | 0.082** | 2.20 | SEGMENT | 0.237*** | 3.78 |
| Δ BIG4 | 0.322 | 1.48 | BIG4 | 0.876** | 2.50 |
| Δ CGOV | -0.039 | -1.01 | CGOV | -0.512*** | -5.29 |
| | | | BONDRATING | -0.400*** | -11.33 |
| | | | VOLATILITY | 0.734*** | 5.02 |
| Industry Indicators | Included | | Industry Indicators | Included | |
| Year Indicators | Included | | Year Indicators | Included | |
| Observations | 19,535 | | Observations | 7,873 | |
| Adjusted R ² | 0.0666 | | Adjusted R ² | 0.4832 | |

This table presents the results of endogeneity tests to address concerns about omitted correlated variables in our study. Specifically, we perform a changes analysis and re-estimate the baseline regression model by including more control variables. The continuous variables in the baseline regression model are winsorized at the 1% and 99% percentiles each year before entering the regression analysis. *, **, and *** denote significance at the 10, 5 and 1 percent (two-tailed) confidence levels, respectively. Detailed variable definitions are provided in Appendix 1.

Table 10
Employee Treatment and Annual Report Readability
Endogeneity Tests

| Parameter | Two-Stage OLS Regression Analysis | | | |
|----------------------------------|---------------------------------------|---------|--------------------------------|--------------|
| | Column 1 | | Column 2 | |
| | Dep. Var. = TREATMENT INSTRUMENTAL | | Dep. Var. = READ DIFFICULTY | |
| | Estimate | t Value | Estimate | t Value |
| Intercept | -0.607*** | -11.63 | 90.041*** | 248.98 |
| TREATMENT_MEAN | 0.939*** | 24.20 | | |
| TREATMENT_INSTRUMENTAL | | | -0.208*** | -4.16 |
| SIZE | 0.104*** | 21.47 | 0.422*** | 12.68 |
| LEV | -0.158*** | -4.65 | 1.185*** | 5.24 |
| ROA | -0.179** | -1.99 | -2.468*** | -4.22 |
| MTB | 0.002** | 2.14 | -0.012* | -1.80 |
| CFO | 0.637*** | 7.13 | -6.445*** | -11.10 |
| CAPINT | -0.250** | -2.11 | -8.186*** | -9.47 |
| FIRMAGE | 0.024** | 2.26 | -1.179*** | -16.90 |
| MABILITY | 0.239*** | 11.60 | 0.522*** | 3.88 |
| SITEM | 0.220 | 1.49 | 1.225 | 1.28 |
| MER_ACQ | 0.016 | 1.32 | 0.916*** | 11.72 |
| DIS_ACC | 0.640*** | 6.08 | 2.864*** | 4.15 |
| LOSS | -0.055*** | -2.91 | 0.812*** | 6.64 |
| SEGMENT | -0.010* | -1.65 | 0.478*** | 12.70 |
| BIG4 | 0.025 | 1.29 | 0.894*** | 7.12 |
| CGOV | 0.059*** | 5.87 | -0.508*** | -7.84 |
| Industry Indicators | Included | | Included | |
| Year Indicators | Included | | Included | |
| Observations | 22,033 | | 22,033 | |
| Adjusted R ² | 0.2222 | | 0.5107 | |
| <i>Under-identification test</i> | | | | |
| Kleibergen-Paap rk LM statistic | 88.58 | | | |
| p-value | 0.000 | | | |
| <i>weak instrument test</i> | | | | |
| Cragg-Donald Wald F-stat | 93.56 | | | |
| Stock-Yogo (2005) critical value | 16.38 | | | |

This table presents the results of endogeneity tests to address concerns about reverse causality in our study. Specifically, we perform a two-stage OLS regression analysis. The continuous variables in the baseline regression model are winsorized at the 1% and 99% percentiles each year before entering the regression analysis. *, **, and *** denote significance at the 10, 5 and 1 percent (two-tailed) confidence levels, respectively. Detailed variable definitions are provided in Appendix 1.