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Employee treatment and firm leverage: a test of the stakeholder theory of capital structure

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Abstract

We investigate the stakeholder theory of capital structure from the perspective of a firm's relations with its employees. We find that firms that treat their employees fairly (as measured by high employee-friendly ratings) maintain low debt ratios. This result is robust to a variety of model specifications and endogeneity issues. The negative relation between leverage and a firm's ability to treat employees fairly is also evident when we measure its ability by whether it is included in the *Fortune* magazine list, "100 Best Companies to Work For." These results suggest that a firm's incentive or ability to offer fair employee treatment is an important determinant of its financing policy.

1. Introduction

A firm's nonfinancial stakeholders, such as customers, suppliers, and workers, can have a significant influence on its capital structure decisions. Titman (1984) was the first to point out that the stakeholders' incentives to make firm-specific investments affect a firm's financing decisions. Titman argues that because stakeholders face switching costs if the firm is liquidated, their incentives to make firm-specific investments depend on the firm's financial condition. Because stakeholders' switching costs are positively related to the uniqueness of a firm's products or assets, to maximize firm value ex ante, firms that have unique products or assets have strong incentives to maintain lower leverage to reduce stakeholders' concerns about the firms' potential liquidation risk. Consistent with Titman (1984), several studies show that firms that produce unique products and those that maintain bilateral customer-supplier relations have low leverage (Titman and Wessels, 1988; Kale and Shahrur, 2007; and Banerjee, Dasgupta, and Kim, 2008).

While these studies enhance understanding of the interaction between a firm's stakeholder relation and corporate decisions, they address this interaction only from the perspective of customer-supplier relations and pay almost no attention to a firm's relations with other types of stakeholders. In particular, little is known about the role of the workforce in a firm's financing decisions.[1] This lack of evidence is surprising, given the fact that the workforce represents one of the key stakeholders of a firm and its human capital is increasingly seen as one of the most important factors for a firm's competitive success (Pfeffer, 1996).

In this paper we attempt to fill this gap by investigating how a firm's incentive and ability to offer fair employee treatment are relevant to its capital structure decision. There are potentially three important arguments for why the quality of a firm's employee treatment should be related to its capital structure. The first argument, which is the primary focus of this paper, is based on the capital structure choice model

[1] Prior studies examine the role of the workforce in corporate decisions from different perspectives. For example, Faleye, Mehrotra, and Morck (2006) investigate the role of labor in corporate governance and show that a labor voice in corporate governance is associated with significantly depressed shareholder value, sales growth, and job creation. Kim and Ouimet (2008) examine how employee stock ownership plans (ESOPs) affect employee compensation and firm value and find that ESOPs increase employee compensation and firm valuation.

of Maksimovic and Titman (1991), who show that firms that want to credibly commit themselves to providing better employee benefits need to have lower debt ratios. The key insight of Maksimovic and Titman is that customers, employees, and other stakeholders are reluctant to do business with a highly levered firm because financial difficulties can affect the firm's incentive to honor its implicit contracts with them. For example, to avoid immediate bankruptcy, a highly levered firm in financial distress could have strong incentives to increase cash flows by cutting costs related to employee benefits. Because rational employees recognize these incentives of a highly levered firm to change the terms of trade that are created by outstanding debt, they require higher wages for their labor, and this results in a reduction in firm value. In other words, the loss of a firm's reputation could impose significant ex ante costs on its employees and these costs can comprise an important component of indirect bankruptcy costs. Thus, the Maksimovic and Titman (1991) model predicts that firms that place a higher value on their reputation for treating employees fairly should limit their use of debt. Because firms that currently implement employee-friendly policies are likely to be those that attach a high value to their reputational capital, they have strong incentives to provide a credible commitment to fair employee treatment. Therefore, these firms are expected to maintain lower debt ratios than firms that do not implement employee-friendly policies. Although Maksimovic and Titman (1991) develop their reputation model by focusing on a firm's incentives to maintain its reputation for producing a high-quality product, their model can also be applied to other implicit contracts settings. For example, Maksimovic and Titman (1991, p. 194) note that their "analysis can be applied to many types of implicit contracts other than product quality in which the terms of trade are determined in part by reputation considerations. Examples include a firm's reputation for treating suppliers and employees fairly."

The second argument is based on the Myers (1977) analysis of agency costs of debt and optimal capital structure. Myers argues that the firm with high debt outstanding has incentives to pass up valuable investment opportunities that could make a positive net contribution to the market value of the firm. This underinvestment problem is more severe for firms with higher growth opportunity than those with more assets-in-place, implying that the leverage ratio is negatively related to growth opportunities. Thus, if a firm's investment in human capital is a positive net present value project, then firms with high leverage underinvest in employee benefits, resulting in a negative relation between leverage and employee benefits. Moreover, the Myers (1977) argument suggests that this negative relation should be more pronounced for high growth firms because the costs of the suboptimal future investment strategy, i.e., agency costs induced by high leverage, are particularly large for these firms. To the extent that the value of firms with higher growth opportunity depends more on their discretionary investments (e.g., investments in human capital) than on their assets-in-place, these firms are more likely to implement the suboptimal future investment strategy than firms with lower growth opportunity. Thus, high leverage is more likely to lead to underinvestment in human capital for high growth firms than for low growth firms.

Although both the arguments of Maksimovic and Titman (1991) and Myers (1977) predict a negative relation between a firm's leverage and the extent to which it treats employees well, their arguments are different in terms of cause and effect. While the former predicts that the extent of a firm's investment in employee benefits determines its capital structure, the latter predicts the opposite — a firm's capital structure influences its investment in employee benefits.

The third explanation is based on the free cash flow argument of Jensen (1986). Jensen argues that managers with large free cash flow have incentives to overinvest beyond the optimal level and high leverage constrains managers from diverting free cash flow to obtain private benefits. Because firms with higher free cash flow are likely to have more resources to invest in employee benefits than those with lower free cash flow, these firms are likely to treat their employees more generously even if investment in employee benefits does not create value for their shareholders. If debt serves as the disciplinary mechanism that prevents managers from wasting free cash, this argument suggests that high leverage can control overinvestment in employee benefits, resulting in a negative relation between leverage and employee benefits. Supporting the Jensen (1986) argument on the disciplinary role of debt, Hanka (1998) shows that higher debt is associated with more frequent employment reductions, lower wages, and reduced pension funding. Like the Myers (1977) argument, the Jensen (1986) argument predicts that a firm's capital structure affects the extent of its investment in employee benefits.

To investigate the relation between the extent of a firm's positive employee treatment and its financial policy, we exploit a firm-level measure of how a firm treats its employees. The source of our data is the KLD Research & Analytics, Inc. (hereafter, KLD) SOCRATES database. This database provides extensive information on the ratings given to firms in relation to their employee treatment standards and is the most comprehensive database available for evaluating a firm's strengths in employee relations. Using this database, we create an index, which we call the Employee Treatment Index, to measure the extent of a firm's employee friendliness.

Using a sample of 10,562 firm-year observations for which KLD ratings are available for the period 2003 to 2007, we find strong evidence that firms with a higher score on the Employee Treatment Index (i.e., firms that adopt more employee-friendly policies) maintain lower leverage. This result is consistent with all three arguments by Maksimovic and Titman (1991), Myers (1977), and Jensen (1986). We then perform several additional tests to evaluate the validity of each argument in explaining the link between employee treatment and leverage. First, we estimate the regressions of changes in employee treatment (leverage) on the change in leverage (employee treatment) in subsequent years to examine the cause and effect between employee treatment and leverage. We find that the Employee Treatment Index affects leverage in subsequent years, but not vice versa, which supports Maksimovic and Titman (1991).

Second, to further evaluate the arguments of Myers (1977) and Jensen (1986), we examine whether the extent of the link between the Employment Treatment Index and leverage differs across firms with different growth opportunities and those with different levels of the agency problem, respectively. While the Myers (1977) argument predicts that the negative relation between employee treatment and leverage is more pronounced for firms with higher growth opportunities, the Jensen (1986) argument predicts that such negative relation is more pronounced for firms with more severe free cash flow problems or those with poorer corporate governance. Our results support neither of these predictions.

Third, to evaluate the Maksimovic and Titman (1991) argument, we investigate how the impact of the Employment Treatment Index on leverage differs across industries and firms with different characteristics that Maksimovic and Titman consider to be important determinants of firms' incentives to maintain their reputation for providing fair employee treatment. Specifically, Maksimovic and Titman argue that the negative relation between leverage and employee treatment is more pronounced for firms that are more likely to be in financial distress, those that have less availability of alternative uses of their assets, and those whose employees are more important to their businesses. Our results uniformly support all of these predictions.

Finally, given our strong evidence in support of the Maksimovic and Titman (1991) argument, we further check the robustness of the results by conducting the following two tests. First, we perform an out-of-sample test using firms in the *Fortune* magazine list of “100 Best Companies to Work For” between 1998 and 2008. Because these firms are known to have a reputation for treating their employees fairly, we expect them to maintain a lower leverage ratio than matching firms. We find that our results are robust to using this alternative measure of a firm’s employee treatment.

Second, we perform several sensitivity tests to address the potential endogeneity issue. One concern with regard to our finding that firms with better employee treatment maintain lower debt ratios is that it could suffer from endogeneity. Some omitted variables could affect both the Employee Treatment Index and leverage at the same time, resulting in a spurious correlation. For example, well-performing firms could be those that are able to maintain a low leverage ratio and at the same time can afford to maintain a high rating on the Employee Treatment Index. We address this endogeneity issue using firm fixed effect regression, two-stage least squares (2SLS) regressions, and regressions of the change in leverage over a three-year period on the change in the Employee Treatment Index. As a further test, to ensure that the Employee Treatment Index does not act as a proxy for other known factors that affect leverage, we control for several factors in the regressions, such as managerial entrenchment (Berger, Ofek, and Yermack, 1997), union coverage (Bronars and Deere, 1991; Dasgupta and Sengupta, 1993; and Perotti and Spier, 1993), employee stock ownership (Faleye, Mehrotra, and Morck, 2006), marginal tax rate before interest expenses (Graham, 1996; and Graham, Lang, and Shackelford, 2004), buyer-supplier relations (Kale and Shahrur, 2007; and Banerjee, Dasgupta, and Kim, 2008), and asset tangibility. Our results are robust to all of these sensitivity tests.

While our paper investigates the Maksimovic and Titman (1991) theory of capital structure, it is also related to two other theoretical papers that examine the importance of human capital in a firm's capital structure decision. Butt-Jaggia and Thakor (1994) argue that a firm's capital structure depends on its human asset specificity. Because of their human capital concerns, when the firm has a higher probability of liquidation, employees choose to invest less in firm-specific human capital. Thus, the Butt-Jaggia and Thakor (1994) model suggests that firms with greater human asset specificity should maintain lower leverage ratios. Berk, Stanton, and Zechner (2010) derive the optimal labor contract for firms and argue that bankruptcy costs associated with human capital risk are large enough to offset tax benefits. They show that the firm's optimal capital structure is determined by a trade-off between these human capital costs of bankruptcy and the tax benefits of debt. To the extent that firms that value firm-specific human capital treat employees better, our results are consistent with the prediction of these two studies.

Our paper is also related to several studies that examine the stakeholder theory of capital structure from the perspective of customer-supplier relations. For example, Titman and Wessels (1988) find that firms in durable goods industries, which are more likely to produce unique products and thus impose higher liquidation costs on their stakeholders, maintain lower leverage. Using firm-level data on bilateral customer-supplier relations, Banerjee, Dasgupta, and Kim (2008) show that customer firms in durable goods industries maintain low leverage and that "dependent suppliers" in durable goods industries do so as well. In a similar vein, Kale and Shahrur (2007) find that firms use decreased leverage as a commitment mechanism to induce suppliers or customers to undertake relation-specific investments. The important aspect of these studies is that they investigate the stakeholder theory of capital structure mainly from the perspective of the liquidation costs imposed on stakeholders. However, given that many defaulting firms are reorganized instead of liquidated, liquidation costs imposed on stakeholders are unlikely to explain the whole story behind the effect of stakeholder relations on a firm's financing policy. Our study shows that a firm's incentives to maintain its reputation for treating employees fairly and the reluctance of employees to maintain a relation with a highly levered firm are important considerations for a firm's capital structure decision, even when employees suffer no liquidation costs.[2]

The paper is organized as follows. In Section 2 we describe the data used in the paper and provide summary statistics. In Section 3 we present regression results for the relation between the Employment Treatment Index and leverage. In Section 4 we report the results from the tests of the validity of three different models. Section 5 presents results of our robustness tests. Section 6 summarizes and concludes the paper.

2. Data and summary statistics

In this section, we describe the sample selection procedure and the summary statistics for our sample firms.

2.1. Measure of a firm's employee treatment

We measure a firm's reputation for treating employees fairly by how it treats its current employees. We obtain this measure from the KLD SOCRATES database, which provides extensive data on the ratings of firms' employee friendliness. The KLD SOCRATES database has been used in many studies as the proxy for firms' employee treatment. For example, Landier, Nair, and Wulf (2009) find that geographically dispersed firms are less employee-friendly, and Cronqvist, Low, and Nilsson (2007) show that employee treatment of parent and spin-off firms tends to be highly correlated. Turban and Greening (1997) find that a firm's employee relations, as measured by KLD rating, are highly correlated with the firm's attractiveness as an employer.

KLD assigns ratings based on a wide variety of data sources, including company filings, government data, nongovernment organization data, general media sources, and direct communications with company

[2] Verwijmeren and Derwall (2010) also examine the relation between employee well-being and firms' leverage, but their study focuses on the liquidation costs imposed on employees. Their study also does not directly test the stakeholder theory of capital structure argued by Maksimovic and Titman (1991).

officers. Once KLD has the information, its sector-specific analysts rate the social performance of firms using a proprietary framework of positive and negative indicators. Firms are rated in seven major qualitative areas: environment, community, corporate governance, diversity, employee relations, human rights, and product quality and safety.

Out of these seven areas, we use the ratings in five categories of employee relations as our key measure of how firms treat their employees. Below, we summarize how KLD evaluates strengths in each category of employee relations.

1. Union relations — whether or not the company has taken exceptional steps to treat its unionized workforce fairly.
2. Cash profit-sharing — whether or not the company has a cash profit-sharing program through which it has recently made distributions to a majority of its employees.
3. Employee involvement — whether or not the company strongly encourages worker involvement or ownership through stock option plans that it makes available to a majority of its employees.
4. Retirement benefits strength — whether or not the company has a notably strong retirement benefits program.
5. Health and safety strength — whether or not the company has a strong health and safety program.

KLD assigns a 0/1 rating for each of the five categories. Summing up the indicator variables for the above five strengths in employee relations, we create the Employee Treatment Index that ranges between zero and five. A higher value indicates better employee treatment.

2.2. Sample selection

Our sample consists of all of the firms covered by the KLD SOCRATES database between 2003 and 2007. The database covers a subset of publicly traded companies in the United States between 1991 and 2007. For our sample, we use KLD ratings between 2003 and 2007, because the sample during this period includes firms in the Russell indexes and thus provides the largest variation across firms. However, in some of our analyses, to provide robust results, we use Standard & Poor's (S&P) 500 firms that are covered by the KLD SOCRATES database from 1995 to 2007.

Our initial sample consists of 14,898 firm-year observations with ratings on employee relations. We then merge the list of these observations with the Compustat industry annual file to extract information on firm characteristics. Next, we exclude firms for which information on total assets is missing and firms that are in regulated industries [i.e., firms that have primary standard industrial classification (SIC) codes between 6000 and 6999 and between 4900 and 4999]. We also exclude firms that are not headquartered in the United States. These restrictions result in a final sample of 10,562 firm-year observations. About 15.5% of the sample has a positive score on the Employee Treatment Index. A further breakdown of that 15.5% shows that 12.19%, 2.66%, 0.54%, and 0.11% of the sample has a score of one, two, three, and four, respectively. None of the observations has an Employee Treatment Index score of five.

2.3. Summary statistics

In Table 1, we present summary statistics for our sample firms. We compare the characteristics of firms with a positive Employee Treatment Index score with those of matching firms with a zero Employee Treatment Index score. Because firms with a positive Employee Treatment Index score tend to be large, for each sample firm with a positive Employee Treatment Index score we select a matching firm of similar asset size from the same industry using the first two digits of the SIC code. We compare important statistics between these two groups. The Appendix provides a detailed description of the construction of the variables in Table 1.

[Insert Table 1 near here]

Several features are noteworthy. First, we find that firms with a positive Employee Treatment Index score have lower leverage ratios than matching firms with a zero Employee Treatment Index score. The mean and median market long-term debt ratios of positive Employee Treatment Index firms are, respectively, 10.1% and 7.5%. We compute the market long-term debt ratio as total long-term debt divided by the sum of total debt plus market value of equity. In comparison, the corresponding mean and median ratios of matching firms are much higher at 13.6% and 10.5%, respectively. The differences are statistically significant. When we measure the leverage ratio by book values (total long-term debt divided by total book value of assets), we find that the differences are even more revealing.

Second, the median firm size (measured by book assets and sales), market-to-book ratios, and fixed assets to total assets are statistically indistinguishable between the two groups. We do not find any significant differences in median dividend-paying behavior and sales turnover (sales over total assets). However, the median return on assets is significantly higher for firms with a positive Employee Treatment Index score than for matching firms with a zero Employee Treatment Index score. Firms with a positive Employee Treatment Index score also show higher medians for research and development (R&D) over total sales and selling, general, and administrative (SGA) expenses over total sales.

Third, we find that firms with a positive Employee Treatment Index have a lower sales growth rate than matching firms with a zero Employee Treatment Index score. We also find that firms with a positive Employee Treatment Index score provide their employees with higher compensation and more generous retirement benefits. For example, the median labor and related expenses, pension and retirement expenses, and employee options per worker for firms with a positive Employee Treatment Index score are $74,831, $2,361, and $2,753, respectively. The corresponding numbers for matching firms are much smaller at $62,804, $1,686, and $1,078, respectively. We obtain data on employee options from the S&P ExecComp database, which covers firms in the S&P 500, S&P MidCap 400, and S&P SmallCap 600 indices. ExecComp provides information on the total value of the options granted to the top five executives of firms, which are estimated using the Black-Scholes option pricing model, and the value of these options as a percentage of the total options granted during the year. Following Bergman and Jenter (2007), we assume that all options granted net of those given to the top five executives are employee options. Because the ExecComp does not provide information on the share of total grants given to the top five executives after 2006, we use the time series mean of the value of options granted per worker over our sample period to measure the extent to which a firm uses stock options to reward its employees.

Finally, we find that firms with a positive Employee Treatment Index score show higher sales to their large customers than matching firms, which suggests that firms with better employee treatment maintain stronger relations with their customers. We consider firms as having a large customer if that customer is accountable for more than 10% of a firm's annual sales. The Financial Accounting Standard Board disclosure rules require firms to report all customers responsible for over 10% of their annual revenues along with the total amount of revenues from each such customer. We obtain information on sales to large customers from the Compustat business segment files.

3. Relation between leverage and the Employee Treatment Index

In this section, we first show a negative relation between a firm's reputation for providing fair employee treatment, as measured by the Employee Treatment Index, and its leverage ratio. We then investigate whether the variation in leverage ratio is due to time series or cross-sectional variation in the Employee Treatment Index, and whether it is due to within industry or across-industry variation in the Employee Treatment Index.

3.1. Regression specification

To examine the effect of a firm's reputation for providing fair employee treatment on its capital structure decision, we use a regression model that allows us to make slow adjustments to the capital structure (Fama and French, 2002; Flannery and Rangan, 2006; Lemmon, Roberts, and Zender, 2008; Antoniou, Guney, and Paudyal, 2008; Huang and Ritter, 2008; Banerjee, Dasgupta, and Kim, 2008; and Chang and Dasgupta, 2009). We start with a partial adjustment model:

$$d_{it} - d_{it-j} = \beta(d_{it}^{*} - d_{it-j}), \quad (1)$$

where d_{it} and d_{it}^{*} denote the actual and the target leverage ratios for firm *i* at time *t*, respectively, and β denotes the speed of adjustment ($0 < \beta < 1$). We also assume that the target leverage ratio is a function of a set of the predetermined variable, X_{it}:

$$d_{it}^{*} = \sum_k a_k X_{kit}, \quad (2)$$

where X_{kit} is the determinant of the target leverage ratio and a_k is its coefficient. Combining Eq. (1) and (2), we obtain the reduced-form model:

$$d_{it} = \beta \sum_k a_k X_{kit} + (1-\beta) d_{it-j}. \quad (3)$$

Based on the reduced-form model, we run the regression model of leverage ratio regressed on lagged leverage ratio and the set of leverage determinants, including the Employee Treatment Index. We use the market long-term leverage ratio as our main proxy for firm leverage ratio (hereafter referred to as market leverage ratio or leverage ratio). As an alternative measure for firm leverage ratio, we also use the book long-term leverage ratio (hereafter, book leverage ratio).

Consistent with previous studies (Rajan and Zingales, 1995; Frank and Goyal, 2003b; and Lemmon and Zender, 2010), we use the following set of leverage determinants: growth opportunities (market-to-book ratio), size (natural log of sales), profitability (return on assets), and tangibility (fixed assets scaled by total assets). We expect growth opportunities to be negatively related to leverage ratio, because higher growth opportunities imply higher costs of financial distress. Moreover, higher growth opportunities could increase the agency problems between shareholders and bondholders (Myers, 1977) and therefore less debt is desired (Jensen, 1986). We expect firm size to be positively related to leverage ratio, because firm size is an inverse proxy for both volatility and the costs of bankruptcy (Frank and Goyal, 2003a). Standard trade-off theory predicts that profitability is positively related to leverage, which increases the value of tax shields. Also, agency theory predicts that more profitable firms should have more debt in their capital structure to control managerial misbehavior (Jensen, 1986). In contrast, pecking-order theory predicts that profitable firms use less external financing, including debt (Myers and Majluf, 1984). Fama and French (2002) find a negative relation between leverage ratio and profitability. We expect tangible assets to be positively related to leverage ratio as they can be pledged as collateral. Frank and Goyal (2003a) provide a detailed discussion on the predictions for these determinants of capital structure.

Our set of determinants also includes R&D expenditures over sales, SGA expenses over sales, a dividend-paying dummy, and assets turnover ratio (net sales scaled by total assets). R&D expenditures can represent future investment opportunities or product specialization (Titman, 1984), so we expect it to be negatively related to leverage. SGA expenses can represent product specialization but can also serve as a proxy for agency costs. Thus, we expect a negative relation between SGA expenses and leverage ratio. Dividend-paying firms are presumably less financially constrained, so we anticipate these firms to use less debt. The assets turnover ratio can represent capital intensity. We therefore expect to find that it is negatively related with leverage. We also include year dummies to control for any factors that affect all of the firms at the same time, such as recessions, a trend in capital structure, and so on. All reported *p*-values are based on standard errors that are heteroskedasticity-consistent and allow for clustering at the firm level.

3.2. Regression results

Table 2 shows the results of the regressions that examine the relation between a firm's reputation for providing fair employee treatment and leverage. In Regressions 1 through 3, the dependent variable is a market leverage ratio, and in Regression 4 it is a book leverage ratio. All of the regressions except for Regression 3 use the sample of firms covered by the KLD SOCRATES database between 2003 and 2007. For Regression 3 we use the sample that consists of S&P 500 firms between 1995 and 2007. All of the regressions include year dummies, but, for the sake of brevity, we do not report their estimates.

[Insert Table 2 near here]

In Regression 1, we use as independent variables all of the firm characteristic variables discussed in subsection 3.1, except for the Employee Treatment Index. All of the coefficient estimates on these firm characteristics have expected signs and are statistically significant, except for the coefficient estimate on the dividend-paying dummy. We find that the coefficient estimate on the lagged leverage ratio is significantly positive and large in magnitude (0.805), suggesting a high serial correlation of the leverage ratios. Consistent with the findings of other studies, the coefficient estimates on log of sales and asset tangibility are positive and the coefficient estimates on market-to-book ratio, return on assets, R&D expenses to sales, SGA expenses to sales, and assets turnover are negative.

In Regression 2, we use the Employee Treatment Index as an additional explanatory variable. The coefficient estimate on the Employee Treatment Index is negative and statistically significant (*p*-value is zero). The coefficient estimate of -0.835 suggests that, as the Employee Treatment Index increases by one point, a firm's target long-term leverage ratio decreases by approximately 4.2 [= 0.835 / (1-0.805)] percentage points. Viewed from another perspective, if the Employee Treatment Index increases by one standard deviation, then the market long-term debt ratio decreases by approximately 2.1 percentage points. Because the mean market long-term debt ratio for our sample firms is 11.3%, a 2.1 percentage point drop represents a reduction in the average leverage ratio of almost 19% (= 2.1 / 11.3). Thus, the effect of the Employee Treatment Index on a firm's leverage is both statistically and economically significant.

Although not reported, we reestimate Regression 2 separately, by replacing the Employee Treatment Index with its individual components (i.e., ratings on union relations, cash profit sharing, employee involvements, retirement benefits, and health and safety). We find that, except for union relations, all of the other components of the index have a significant negative impact on a firm's leverage.

When we estimate the regression using the S&P 500 sample from 1995 to 2007 in Regression 3, the coefficient of the Employee Treatment Index is still negative and significant (*p*-value is 0.07). Rating information on health and safety is available only after 2003. Therefore, we do not include a rating on health and safety in the construction of the Employee Treatment Index for the S&P 500 sample.

In Regression 4, in which we use book leverage ratio as the dependent variable, the coefficient of the Employee Treatment Index is again negative and highly significant (*p*-value is zero). Overall, these results are consistent with the view that the extent of a firm's employee treatment is negatively related to its leverage ratio, which supports all three arguments by Maksimovic and Titman (1991), Myers (1977), and Jensen (1986). In untabulated tests, we also estimate these regressions for each year of our sample period. The coefficient estimates on the Employee Treatment Index are all negative and statistically significant for every single year.

In Regressions 1 through 4, we include the lagged leverage ratio as an independent variable, as expressed in Eq. (3). One concern with this approach, however, is that the leverage ratio at time *t* is likely to be measured with error, and that error is likely to be correlated with the measurement error at time *t*-1. This could bias the coefficient estimate on the lagged leverage ratio, which in turn generates a bias in the coefficient estimates of the other variables that are correlated with the leverage ratio.[3] To address this concern, in Regressions 5 through 8 we repeat the previous four regressions, excluding the lagged leverage ratio from the independent variables. The results we obtain from these regressions echo those from the regressions that include the lagged leverage ratio. As in Regressions 2 through 4, in Regressions 6 through 8 we again find negative and significant coefficient estimates on the Employee Treatment Index.

3.3. Where does the leverage variation come from?

The panel data we use in Table 2 include both time series and cross-sectional variation in leverage ratio and other variables. Therefore, the variation in leverage ratio we report in Table 2 could be due to the time series variation in the Employee Treatment Index within a firm or due to the cross-sectional variation in the Employee Treatment Index across firms. Similarly, the variation in leverage ratio could be due to the variation in employee treatment within an industry or due to the variation in employee treatment across industries.

Table 3 reports the results for the extent to which the variation in leverage ratio is due to each of these variations in the Employee Treatment Index. In Regression 1, we run a firm fixed effect regression. Because the firm fixed effect captures across-firm variation of firm characteristics within the firm dummies, the coefficient estimate on the Employee Treatment Index should measure the effect of time series variation in the Employee Treatment Index within a firm on the leverage ratio. We find that the

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[3] The previous studies that do not use the lagged debt ratio as an independent variable in estimating capital structure regressions include MacKie-Mason (1990), Rajan and Zingales (1995), Berger, Ofek, and Yermack (1997), Fan, Titman, and Twite (2008), and Almazan, De Motta, Titman, and Uysal (2010). One disadvantage of the estimation approach that excludes the lagged leverage ratio from the capital structure regressions is that it implicitly assumes that a firm's current leverage ratio is equal to its optimal leverage ratio, which is unlikely to be the case when the firm is subject to leverage adjustment costs (Leary and Roberts, 2005).

coefficient estimate on the Employee Treatment Index is negative and significant at the 5% level. Its magnitude (-0.407) suggests that a one point increase in the Employee Treatment Index is associated with a 0.58 percentage point decrease in the leverage ratio. In comparison, in Regression 2 of Table 2 that includes both across-time and across-firm effects, we show that a one point increase in the Employee Treatment Index leads to a 4.2 percentage points decrease in the leverage ratio. Taken together, these results suggest that the variation in leverage ratio related to the Employee Treatment Index is to a larger extent driven by across-firm effect than by across-time effect within a firm. From a purely statistical point of view, these results are not surprising given that the number of our sample firms is about three thousand, whereas our sample period is only five years. The large number of firms in the cross section compared with the number of years across time suggests that a cross-sectional variation of the Employee Treatment Index across firms be larger than a time series variation across time.

[Insert Table 3 near here]

In Regression 2, we estimate the firm fixed effect regression excluding the lagged leverage ratio. Although the coefficient estimate on the Employee Treatment Index is negative and significant at the 1% level, its magnitude is still relatively small at -0.648.

In Regression 3, for each firm we compute the time series averages of leverage ratio, Employee Treatment Index, and other explanatory variables over our sample period, and then we estimate a cross-sectional regression of the time series average of leverage ratio on the time series average of Employee Treatment Index and the time series averages of other explanatory variables. This regression, thus, captures the effect of cross-sectional variation in the Employee Treatment Index on the leverage ratio. The coefficient estimate on the Employee Treatment Index is negative and significant at the 1% level. Its magnitude (-4.569) is about seven times as large as that of the coefficient estimate on the Employee Treatment Index in Regression 2, further suggesting that cross-sectional effects of the Employee Treatment Index are more important in explaining the variation in leverage ratio than its time series effects.

In Regressions 4 through 6, we examine the extent to which a negative relation between leverage and employee treatment is driven by within-industry variation in the Employee Treatment Index or across-industry variation in the Employee Treatment Index. For example, it could be that some technology firms treat their employees better than other technology firms, so the former firms are less levered than the latter firms. In this case, the negative relation between leverage and employee treatment can be largely due to within-industry variation in the Employee Treatment Index. Alternatively, it could be that technology firms treat their employees better than hotel workers, which implies that technology firms choose less leverage than nontechnology firms. In this case, the negative relation between leverage and employee treatment is likely due to across-industry variation in the Employee Treatment Index. In Regressions 4 and 5, we estimate an industry fixed effect regression with and without the lagged leverage ratio, respectively. We define the industry by the first two digits of its SIC code. Because the variation across industries is captured by industry fixed effects, the coefficient estimates on the Employee Treatment Index in these two regressions should measure the effect of within-industry variation in the Employee Treatment Index on leverage. We find that the coefficient estimates on the Employee Treatment Index are -0.629 and -2.579, respectively, both of which are significant at the 1% level.

In Regression 6, to capture the effect of across-industry variation in the Employee Treatment Index on the leverage ratio, we compute the averages of leverage ratio, Employee Treatment Index, and other explanatory variables over the sample period for firms that belong to the same three-digit SIC code and then estimate a cross-sectional regression of the average of leverage ratio on the average of Employee Treatment Index and the averages of other explanatory variables. We find that the Employee Treatment Index is negatively and significantly related to the leverage ratio. The magnitude of the coefficient estimate on the Employee Treatment Index is -3.384, which is larger than the -2.579 estimated in Regression 5. Collectively, these results indicate that both within-industry and across-industry variations in the Employee Treatment Index significantly contribute to the variation in the leverage ratio, albeit across-industry effects appear to be slightly stronger than within-industry effects.

4. Tests of three different models

In Section 3, we show that the extent of a firm's employee treatment is negatively related to its long-term debt ratio. This finding is consistent with the prediction of all three different arguments by Maksimovic and Titman (1991), Myers (1977), and Jensen (1986). In this section, we examine the validity of each model in explaining the link between leverage and employee treatment.

4.1. Causal effect between the change in leverage and the change in the Employee Treatment Index

While the Maksimovic and Titman (1991) model predicts that the extent of a firm's investment in employee benefits determines its capital structure, the arguments of Myers (1977) and Jensen (1986) predict the opposite — a firm's capital structure influences its investment in employee benefits. Thus, one way to distinguish among these three models is to examine the direction of the causal effect between the change in leverage and the change in the Employee Treatment Index. Table 4 reports the results from the tests of this causal effect. In Regression 1, we regress the change in long-term debt ratio between year t-1 and year t on the changes in the Employee Treatment Index between year t-1 and year t, between year t-2 and year t-1, between year t-3 and year t-2, and the changes in other explanatory variables between year t-1 and year t. In Regression 2, we use the change in the Employee Treatment Index between year t-1 and year t as the dependent variable and regress it on the changes in long-term debt ratio between year t-1 and year t, between year t-2 and year t-1, between year t-3 and year t-2, and the changes in other explanatory variables between year t-1 and year t.

[Insert Table 4 near here]

The result in Regression 1 shows that there is a causal effect of employee treatment on leverage. However, in Regression 2, we find no evidence that past changes in leverage ratio lead to a subsequent change in the Employee Treatment Index. None of the lagged changes in long-term debt ratio is significantly related to the current change in the Employee Treatment Index. Overall, these results are consistent with the prediction of the Maksimovic and Titman (1991) argument, but not with those of the Myers (1977) and Jensen (1986) arguments.

4.2. Effects of firm or industry characteristics on the relation between leverage and employee treatment

In this subsection, we further examine the validity of each model by using several subsamples. Specifically, we first divide our sample firms into various subgroups according to factors that are likely to affect the relation between leverage and employee treatment.[4] We then repeat the estimation of our baseline regression (Regression 2 in Table 2) for each subgroup of sample firms and examine whether the estimated relation between leverage and employee treatment is consistent with the prediction of each model. In all regressions below, we define firms with a certain characteristic in the top 30th percentile of the sample in each year as high-characteristic firms and firms with a certain characteristic in the bottom 30th percentile of the sample in each year as low-characteristic firms, except for the regressions that use size (total sales), which is highly correlated with the Employee Treatment Index, and an indicator variable for firm or industry characteristics as the classification criteria.

4.2.1. The Myers (1977) model

A key prediction of the Myers (1977) model is that firms with high growth opportunity should limit the use of debt because the underinvestment problem that arises from high leverage is particularly severe for these firms. Thus, if a firm's investment in human capital represents a positive net present value project, then firms with high leverage underinvest in employee benefits, resulting in a negative relation

[4] When we select the factors that influence the relation between leverage and employee treatment, we are careful not to include the factors that can be viewed as alternative measures of capital structure because it is inappropriate to examine such a relation in different subsamples partitioned by capital structure. Specifically, we do not use any factors whose correlation with the leverage ratio is higher than 20% in our analysis. Of 13 factors used in the sample partitioning, the proportion of firms with a negative EBIT (earnings before interest and taxes) in the industry has the highest correlation with the leverage ratio (-0.17), followed by the market-to-book ratio (-0.16), an indicator variable for high cash flow and low Tobin's q, where Tobin's q is measured at the firm level (0.13), an indicator variable for high cash flow and low Tobin's q, where Tobin's q is measured at the industry level (0.11), and the R&D expenditures per employee (-0.11). For the remaining nine variables, their correlations with the leverage ratio are all below 0.10 in absolute terms.

between leverage and employee benefits. Moreover, the negative relation between leverage and employee treatment is more pronounced for firms with higher growth opportunity because the costs of the suboptimal future investment strategy, i.e., agency costs induced by high leverage, are particularly larger for these firms. To the extent that the value of firms with higher growth opportunity depends more on their discretionary investments (e.g., investments in human capital) than on their assets-in-place, the agency costs induced by higher leverage are expected to be larger for firms with higher growth opportunity than for firms with lower growth opportunity.

We investigate this issue by separately estimating the regressions for subsamples that are classified by firms' growth opportunity. We use two measures of growth opportunity: a firm's market-to-book ratio and an industry sales growth rate.

Panel A of Table 5 presents the results. For brevity, we report only the coefficient estimate on the Employee Treatment Index, its *p*-value, adjusted R^2 of the regression, and the number of subsample observations. The first column shows firm or industry characteristics used in sample classifications, the second and the third columns present the estimation results from regressions using high- and low-characteristic subgroups, respectively, and the last column reports the *p*-value for the test of the hypothesis that coefficients on the Employee Treatment Index between high- and low-characteristic subgroups are equal.

[Insert Table 5 near here]

We find that the coefficient estimate on the Employee Treatment Index is significantly negative in groups of firms with both high and low market-to-book ratios. The coefficient estimate for the group of firms with a low market-to-book ratio (-1.109) is more negative than that for the group of firms with a high market-to-book ratio (-0.499). The test of coefficient differences between these two groups strongly rejects the null hypothesis of equality with a *p*-value of 0.03. These results are not consistent with the prediction of the Myers (1977) model.

Similarly, we find no significant difference in the coefficient estimates on the Employee Treatment Index between firms in industries with a high sales growth rate and those in industries with a low sales growth rate (*p*-value = 0.94), again providing little support for the Myers (1977) model. We measure the industry sales growth rate as the geometric mean of the annual industry aggregate sales growth rate over the past three years, where industries are defined by two-digit SIC codes.

4.2.2. The Jensen (1986) argument

The Jensen (1986) argument predicts that firms with larger free cash flow but with fewer investment opportunities are more likely to overinvest in employee benefits beyond the optimal level and that debt serves as the disciplinary mechanism to prevent managers from wasting free cash. This argument implies that firms with low leverage could overinvest in employee benefits and thus the negative relation between leverage and employee benefits is more pronounced for firms with higher free cash flows and fewer growth opportunities. To the extent that free cash flow problems are more severe when corporate managers face fewer disciplinary pressures from internal and external corporate governance, we also expect such negative relation to be more pronounced for firms with poorer corporate governance. We use four variables to identify these firms. The first variable is an indicator variable that uses a firm's free cash flow and its Tobin's q as a classification. Specifically, following Lang, Stulz, and Walkling (1991), we first measure free cash flow as follows: operating income before depreciation - interest expenses - income taxes - decrease in deferred tax and tax credit - dividends on common stocks and preferred stocks. We then, each year, define firms with higher free cash flow as those with the ratio of free cash flow to total assets above the sample median. Next, among the firms with higher free cash flow, we define firms with Tobin's q below the sample median as firms with higher free cash flow and lower Tobin's q. The second variable is an indicator variable that is similar to the first one except that Tobin's q is measured at the industry level. We define industry-level Tobin's q as a ratio of aggregate market value of assets for firms that belong to the same industry defined by the two-digit SIC code to aggregate book value of assets for the same firms. The last two variables that are used for the measures of corporate governance are the G-

Index constructed by Gompers, Ishii, and Metrick (2003) and equity ownership held by institutional investors reported in CDA/Spectrum Institutional (13f) Holdings data.

Panel B of Table 5 shows the regression results from these classifications. We find that the coefficient estimate on the Employee Treatment Index is significantly negative in both groups of firms with higher free cash flow and lower Tobin's q and the rest of firms, regardless of whether Tobin's q is measured at the firm or industry level. The test of differences in coefficients across the two subgroups cannot reject the null hypothesis that they are equal. Similarly, the coefficient estimate on the Employee Treatment Index is significantly negative in both groups of firms with strong and weak corporate governance, irrespective of whether the strength of corporate governance is measured by the G-Index or institutional ownership. The difference in coefficients between these two subgroups is not significant. These results do not support the prediction of the Jensen (1986) argument in explaining the link between leverage and employee benefits.

4.2.3. The Maksimovic and Titman (1991) model

An important implication of Maksimovic and Titman (1991) is that the negative relation between a firm's leverage and the extent to which it treats employees fairly should be stronger when a firm's incentive to maintain its reputation for treating employees fairly is higher. This implication leads to several testable predictions.

The first prediction is that a firm's incentive to reduce the quality of its implicit terms of employment is stronger when it suffers from greater financial distress. When firms face financial distress, they are likely to have strong incentives to borrow from employees by cutting employee benefits. Thus, the Maksimovic and Titman (1991) model predicts that the negative relation between leverage and employee treatment should be stronger in such firms. As a proxy for the likelihood of a firm's financial distress, we first use firm size, as measured by total sales. There are several reasons that firm size could capture the likelihood of financial distress. For example, cash flows tend to be more volatile in smaller firms than in larger firms. Also, compared with larger firms, smaller firms are less established and tend to have fewer asset bases that can be used as collateral, so that debtholders' incentives to bail out smaller firms are generally weaker. These arguments suggest that smaller firms have a higher probability of financial distress than larger firms. Unlike other classification analyses in Table 5 in which we use top and bottom 30th percentiles of firm characteristics as cutoff points to classify the sample into two subgroups, for the analysis using a firm's total sales as the classification criterion, we use the sample median of sales as our cutoff point because of the following two reasons. First, the correlation between firm size and the Employee Treatment Index is very high (30%). In particular, we find that the proportion of firm-year observations in which the Employee Treatment Index is greater than zero is much lower in the bottom 30 percentile group than in the top 30 percentile group (8.08% versus 28.43%). Second, we find that, for the lowest size quintile group in our sample, its median long-term leverage ratio is only 2% and 45% of its firm-year observations have no long-term debt outstanding. This lack of variation in leverage among small firms apparently reduces the power of our tests. For example, if we use top and bottom 30th percentiles of firm size as cutoff points, the coefficient estimate on the Employee Treatment Index is negative and significant in the top 30 percentile group, but not significant in the bottom 30 percentile group. Furthermore, for the latter group, we find that none of the coefficient estimates on explanatory variables is statistically significant except for those on the ratio of fixed assets to total assets and the ratio of sales to assets. The second measure we use as a proxy for financial distress is the proportion of firms with a negative EBIT in the industry defined by two-digit SIC code. The results are presented in Panel C of Table 5. We find that the negative relation between leverage and employee treatment is stronger in firms that are smaller and in industries that have a higher proportion of negative EBIT firms. These results support the Maksimovic and Titman (1991) argument.

The second prediction is that if a firm's assets have alternative uses (i.e., the option to liquidate), it places a lower value on its reputation and the firm is less able to credibly provide fair employee treatment. Thus, the negative relation between leverage and employee treatment should be more pronounced for industries and firms in which assets are firm-specific than for those in which assets have high opportunity costs. We measure the availability of alternative uses of assets using two variables. The first variable is R&D intensity measured as the ratio of a firm's R&D expenses to the number of its employees. R&D activities produce valuable intangible assets, such as patents, copyrights, and technological secrets, all of which tend to be firm-specific. Furthermore, because R&D activities are mostly labor-intensive, R&D-intensive firms tend to rely on employees' efforts and skills to gain technological advantages. Thus, employees in these firms are more concerned about their firms' financial status, which suggests that the negative relation between the Employee Treatment Index and leverage is stronger for R&D-intensive firms than for R&D-nonintensive firms.

The second measure we use to proxy the availability of alternative uses of assets is the existence of customer-supplier relations. A firm with large customers is more likely to have relation-specific assets dedicated to these customers. A large customer usually purchases a significant amount of its cost of goods sold from the supplier and sometimes makes investments that are highly specific to the supplier. Similarly, many large customers demand production components that meet detailed specifications and thus require that their suppliers invest in assets that are specific to their needs. Therefore, a large portion of the assets of firms with large customers tends to be relation-specific, which suggests that these firms have fewer alternative uses of their assets when they liquidate. These arguments predict that the negative relation between leverage and the Employee Treatment Index should be stronger for firms with a large customer than for those without a large customer. Following Banerjee, Dasgupta, and Kim (2008), we constrain our sample to manufacturing firms.

The results using R&D intensity and the existence of customer-supplier relations are reported in Panel D of Table 5. Consistent with the prediction of the Maksimovic and Titman (1991) model, we find that the coefficient estimate on the Employee Treatment Index is negative and significant only for high-R&D firms. The difference in coefficients on the Employee Treatment Index between high- and low-R&D firms is statistically significant.

Turning to the regression results using the existence of large customers as a proxy for the availability of alternative uses of assets, we find that, for firms with a large customer, the coefficient estimate on the

Employee Treatment Index is -1.108, which is significant at the 1% level. However, for firms without a large customer, although the corresponding coefficient estimate is negative and significant, its magnitude is much smaller at -0.571. The test of the difference in coefficients on the Employee Treatment Index between the two subgroups strongly rejects the null hypothesis that they are equal.

Finally, we use the importance of employee retention to measure a firm's incentive to maintain its reputation for treating employees fairly. To the extent that one important motivation for treating employees fairly is to retain key employees and attract talented potential employees, a firm's incentives to maintain a reputation for providing fair employee treatment are likely to increase with the importance of employee retention to the firm's business. Thus, if firms maintain lower debt ratios to credibly offer good employee treatment, the negative relation between leverage and employee treatment is expected to be more pronounced when employee retention is more important to a firm's business. We investigate this issue in Panel E of Table 5.

We use three proxies to measure importance of employee retention: industry employee turnover, the extent of industry competition, and the amount of options granted to nonexecutive employees. The rationales for using each of these three variables are, respectively, as follows. First, low turnover generally means that employees are satisfied with their work and compensation and their job performance is satisfactory to the employers. To the extent that employees who work in low-turnover industries (e.g., durable goods industries) are on average better educated and more skilled than those who work in high-turnover industries (e.g., retail industries), recruiting and retaining qualified employees is more difficult in low-turnover industries than in high-turnover industries. Thus, compared with firms in high-turnover industries, firms in low-turnover industries are more likely to perceive their employees as important. Second, when firms face higher competition in their industries, they are likely to face greater difficulty in recruiting and retaining talented employees. Moreover, current employees are likely to have fewer opportunities to switch to another company if the industry is dominated by a few players. Consequently, the potential value of implementing an employee-friendly policy is expected to be higher for firms in competitive industries. Finally, because employee options can help to align employees' incentives with shareholders' interests and tend to be used as part of an employee's compensation package, firms are more likely to grant options to their employees if they perceive employees as important business partners. Therefore, firms that grant a larger amount of options to employees are considered as having a stronger incentive to credibly offer good employee treatment. The Maksimovic and Titman (1991) model predicts the negative relation between employee treatment and leverage to be more pronounced for firms in low-turnover industries, firms in high-competition industries, and firms that pay high employee options.

In the first set of regressions in Panel E, we use industry-level voluntary employee turnover rate as a proxy for the importance of employee retention. We divide our sample firms by the industry-level voluntary employee turnover rate for 2001 provided by the US Department of Labor.[5] The US Department of Labor provides data on voluntary turnover rates for nine industries: mining, construction, durable goods, nondurable goods, transportation and public utilities, wholesale trade, retail trade, finance, and service. We define low-turnover industries as the three industries with the lowest voluntary turnover rates and high-turnover industries as the three industries with highest voluntary turnover rates. Low-turnover industries are durable goods (annual voluntary turnover rate of 13.5%), nondurable goods (16.8%), and wholesale trade (18.1%). High-turnover industries are service (24.8%), construction (27.8%), and retail trade (44.9%). We find that the coefficient estimate on the Employee Treatment Index is significantly negative for firms in low-turnover industries (-0.867), but insignificantly negative for firms in high-turnover industries (-0.195). The difference in these coefficient estimates is statistically significant at the 5% level.

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[5] Full-calendar data on voluntary turnover rate based on the SIC code are available only for 2001 and 2002. Using 2002 data does not change the results, because the ranking of industry turnover rate is the same for both years. In an unreported test, we also estimate regressions using the turnover data based on the NAICS (North American Industry Classification System). The advantage of using data based on the NAICS is that information on industry-level turnover rates is available for the whole sample period. The NAICS classifies service industries into several subsectors, such as information, professional and business services, educational services, health care and social assistance, arts, entertainment and recreation, accommodation and food services, and other services. Combining these subsectors into one service industry, we find that construction, retail trade, and service industries always have the highest turnover rate over our sample period. The regression results using turnover data based on the NAICS are qualitatively similar to those reported in Panel F of Table 5.

In the next set of regressions, we split our sample firms by the intensity of industry competition as measured by the Herfindahl index at the four-digit SIC level. We find that the significant negative relation between leverage and employee treatment exists only for firms in high-competition industries. The test of the difference in coefficients on the Employee Treatment Index between firms in high-competition industries and those in low-competition industries rejects the null hypothesis of equality at the 10% level.

Finally, we divide our sample firms by the value of options granted per worker measured as the ratio of the total value of options granted to nonexecutive employees to the total number of employees. We find that for high-employee-options firms, the coefficient estimate on the Employee Treatment Index is -0.591, which is significant at the 5% level. In contrast, for low-employee-options firms, the corresponding estimate is only -0.336 and not significant.

In sum, the results in Table 5 show that the relation between leverage and employee treatment is more evident for firms that have stronger incentives to maintain a reputation for treating employees fairly, supporting the predictions of the Maksimovic and Titman (1991) model.

5. Robustness tests

In this section, we perform several additional tests to further verify the relevance of the Maksimovic and Titman (1991) model in explaining the negative relation between leverage and employee treatment.

5.1. Alternative measure of a firm's employee treatment: analysis using Fortune*'s "100 Best Companies to Work For"*

To further examine whether a reputation for providing fair employee treatment affects a firm's financial policy, we use *Fortune*'s "100 Best Companies to Work For" (hereafter referred as *Fortune* firms) as an alternative sample for firms with fair employee treatment. Faleye and Trahan (2006) use *Fortune* firms as the proxy for labor friendliness. They find that better employee treatment brings about improved productivity that outweighs the costs of such arrangements. Moreover, they find that human capital dependent firms are more likely to make the list and the benefits of improved performance accrue mainly to such firms. Edmans (2008) also uses *Fortune* firms to measure employee friendliness and finds that employee friendliness is positively correlated with shareholder returns. Together with the Great Place to Work Institute, *Fortune* conducts an extensive employee survey to select *Fortune* firms. Two-thirds of the company's score is based on the results of this survey. The survey asks questions relating to the employees' attitudes toward management credibility, job satisfaction, and camaraderie. The remaining third of the score is based on the company's responses to the institute's Culture Audit, which includes detailed questions on demographic makeup, pay, and benefit programs, as well as a series of open-ended questions about the company's management philosophy, methods of internal communications, opportunities, compensation practices, diversity efforts, and so forth.[6] To the extent that the *Fortune* list, like the KLD rating, measures a firm's reputation for treating its employees fairly, we expect that firms in *Fortune*'s list maintain low leverage.

We collect data on *Fortune* firms for the period between 1998, the year *Fortune* published its first "100 Best Companies to Work For" list, and 2008. We then combine the *Fortune* list with Compustat. Because *Fortune* publishes its list at the beginning of each year, we combine the *Fortune* list for year *t* with Compustat data for year *t*-1. After filtering out private firms and nonprofit organizations, our final sample has 605 firm-year observations.

To examine whether *Fortune* firms maintain low leverage ratios, we use a matching-firm approach. To select matching firms, we use a propensity score matching approach, as in Lee and Wahal (2004). We choose the matching firms from all of the firms that are listed in Compustat during the sample period. We first use a set of firm characteristics that predict whether a firm will be selected as a *Fortune* firm. We then use these firm characteristics to calculate a propensity score.

Following Rosenbaum and Rubin (1983) and Heckman, Ichimura, and Todd (1997, 1998), we use a probit model to calculate propensity scores. To find optimal matches, we separately use three different matching techniques: nearest neighborhood, Gaussian kernel, and local linear regression. All matchings are conducted with replacement. As suggested by Smith and Todd (2005), to ensure the quality of the

[6] See http://money.cnn.com/magazines/fortune/rankings/ for more details.

matching, we drop 2% of observations for which the propensity score density of the matched observations is the lowest, because these observations are likely to have the worst quality of matching. Using each matching technique, we calculate the difference in leverage ratios between the *Fortune* and the matched non-*Fortune* firms. As in Lee and Wahal (2004), we use bootstrapped standard errors to conduct statistical inferences. The bootstrapping is based on 50 replications. We also calculate bias-corrected 95% confidence intervals.

The set of firm characteristics we use to calculate the propensity score should reliably predict the likelihood of a firm's being selected as a *Fortune* firm. Because *Fortune* firms are likely to be different from non-*Fortune* firms in many respects, we use a comprehensive set of firm characteristics: market-to-book ratio, log of sales, ratio of fixed assets to total assets, return on assets, ratio of R&D expenditures to sales, ratio of SGA expenses to sales, dividend-paying dummy, ratio of sales to total assets, and pension and retirement expenses per worker. In addition to these firm characteristics, we use industry (two-digit SIC code) and year as additional matching criteria.

In Panel A of Table 6 we report the differences in leverage ratios between *Fortune* and matching non-*Fortune* firms. Consistent with the results using KLD firms, we find that, on average, the *Fortune* firms maintain a lower market (book) leverage ratio [by about 6.2 to 7 (5.1 to 8.2) percentage points] than matching firms.

[Insert Table 6 near here]

One problem in our matching-firm approach is that, because we use 11 different firm characteristics as our matching criteria, some of these characteristics cannot be completely matched between a control firm and a *Fortune* firm, which can result in significant differences in firm characteristics between the two samples. In untabulated tests, we find that several firm characteristics including the market-to-book ratio and R&D intensity are significantly different between these two samples. Therefore, to alleviate the concern that our results are driven by firm characteristics other than employee treatment, we winsorize all 11 matching variables in the Compustat firms at the 1% and 99% levels and reconstruct a new non-*Fortune* matching sample. With this new non-*Fortune* matching sample, we find that all of the mean values for 11 firm characteristics are statistically indistinguishable between a control sample and a *Fortune* sample except for leverage ratios, suggesting that winsorization reduces the influence of outliers on the propensity score estimates and thus improves matching quality. The results for the test of the difference in leverage between *Fortune* and these non-*Fortune* matching firms are reported in Panel B of Table 6. We find results similar to those in Panel A of Table 6: The *Fortune* firms maintain a lower market (book) leverage ratio by about 4.4 to 5.0 (4.3 to 5.2) percentage points than new matching firms.

Because *Fortune* firms are determined independently from KLD firms, the results using *Fortune* firms lend additional support to the view that the workforce as a firm's key stakeholder is an important consideration when firms make financing decisions.

In other unreported tests, we combine the KLD sample for 2003–2007 with the *Fortune* sample and find that 238 firm-year observations overlap in these two samples. Of these 238 observations, 65% have an Employee Treatment Index greater than zero. This result suggests that, although KLD and *Fortune* apply their own independent criteria to select firms for their lists, the two lists track each other well in measuring the extent of firms' employee friendliness.

5.2. Endogeneity of the Employee Treatment Index

So far, we have not explicitly considered endogeneity bias caused by omitted variables or reverse causality. However, in interpreting our regression results, we must take these endogeneity biases into account. For example, if some omitted variables affect both a firm's leverage and its propensity to implement employee-friendly policies, then the Employee Treatment Index will not be exogenous to the firm's leverage. Alternatively, it could be that KLD assigns a higher score to the firms with low leverage, so that low-leveraged firms are associated with a higher Employee Treatment Index score. In such a case, the causation goes from low leverage to high Employee Treatment Index, and not vice versa. When these omitted variables or reverse causality bias problems create a negative relation between the Employee Treatment Index and leverage, the coefficient estimates from the ordinary least squares (OLS) tests will be biased and inconsistent. To alleviate these endogeneity concerns, we perform the following additional tests.

5.2.1. Firm fixed effect regression using the GMM

In Regressions 1 and 2 in Table 3, we control for firm fixed effects and find that the coefficient estimates on the Employee Treatment Index are negative and significant. The inclusion of firm dummies removes omitted time-invariant firm characteristics that could cause a spurious relation between leverage and the Employee Treatment Index, thus partially alleviating the endogeneity concern. However, when we use lagged dependent variables as explanatory variables, the consistency of the fixed effect estimator depends on T (the number of periods) being large. Because our model specification incorporates a lagged dependent variable, we reestimate Regression 1 in Table 3 using the generalized method of moments (GMM) estimator suggested by Arellano and Bover (1995). In untabulated results, we find that the significance of the coefficient of the Employee Treatment Index does not change.

5.2.2. Two-stage least squares regression

As a second test, we perform the 2SLS regressions. In the first-stage regression, we use an OLS model to predict the Employee Treatment Index score a firm will receive. In the second-stage regression, we regress the leverage ratio on the predicted value of the Employee Treatment Index from the first-stage regression and the other control variables used in Table 2. Thus, with this approach, the predicted value from the first-stage regression is no longer correlated with the error term of the second-stage regression, so the estimated coefficient is consistent.

We use two instrumental variables in the 2SLS regressions. Our first instrumental variable is the five-year (ten-year) lagged value of pension and retirement expenses per worker. Because one component of the Employee Treatment Index is the KLD evaluation of the generosity of a firm's pension and retirement benefits and a firm's pension policy is likely to be relatively persistent over time, we expect to find a high correlation between the current score of the Employee Treatment Index and the lagged value of pension and retirement expenses per worker. We expect long-term lagged values of pension and retirement expenses per worker, such as five- and ten-year lagged values, to serve as a valid instrument for the following two reasons. First, there seems no reason to believe that current leverage would be affected by pension policies of five to ten years ago beyond its correlation with current pension policies. Although Hanka (1998) finds that current leverage has a negative effect on current pension funding and interprets this result as evidence supporting the disciplinary role of debt on management efficiency, it seems highly unlikely that current debt can have an effect on pension funding in the distant future. In a perfect capital market, in which a firm can immediately rebalance its capital structure whenever deviation from the optimal level occurs, past pension policies should not affect current leverage. When leverage adjustment is costly (Leary and Roberts, 2005), however, past pension policies could affect current leverage and the strength of this effect tends to depend on the speed of capital structure adjustment. Flannery and Rangan (2006) show that it takes about 1.6 years for a firm to remove half of the effects a shock has on its leverage. However, Huang and Ritter (2009) find that the time needed for adjustment is about 3.7 years. Thus, using five- and ten-year lagged values of pension and retirement expenses per worker as instrumental variables should be sufficient to remove most of the effects of past pension policies on current leverage beyond the correlation between past and current pension policies.

Our second instrumental variable is industry-level wage rate as measured by total labor and related expenses divided by total employees across firms in the same industry. To the extent that firms are more likely to treat employees fairly when employees show higher productivity and that wage rates reflect employee productivity, we expect that firms that pay higher wage rates are more likely to implement employee-friendly policies. We use industry-level wage rate for two reasons. First, data on firm-level labor and related expenses are missing for more than 90% of the firms in our sample. Second, although a firm's capital structure could affect its wage rate (e.g., Berk, Stanton, and Zechner, 2010; and Chemmanur, Cheng, and Zhang, 2010), its capital structure is unlikely to affect the industry-level wage rate. Moreover, using the industry-level wage rate reduces the concern that the instrumental variable is affected by unobservable firm characteristics that are also related to capital structure.

Table 7 reports the results. The first-stage regression shows that the variables used to predict the value of the Employee Treatment Index perform reasonably well, with R^2 around 0.2 in all four regressions. In Regression 1 of the second-stage regression we use market leverage ratio as the dependent variable. The instrumental variables are the logarithm of the industry-level wage rate and the logarithm of pension and retirement expenses per worker at year *t*-5. The untabulated overidentification test fails to reject the null hypothesis that our instrumental variables are valid. We find that the coefficient on the predicted Employee Treatment Index score is negative and highly significant. In Regression 2, we use the logarithms of industry-level wage rate and of pension and retirement expenses per worker at year *t*-10 as the instrumental variables. Again, the overidentification test confirms that the instrumental variables are valid. The coefficient on the predicted Employee Treatment Index score is negative and highly significant. In Regression 3, we use pension and retirement expenses per worker at year *t*-5 and year *t*-10 as our instrumental variables. The overidentification test supports the validity of the instrumental variables. We again find that the coefficient on the predicted Employee Treatment Index score is negative and significant. In Regression 4, we use industry-level wage rate as an instrumental variable and obtain the same results.

[Insert Table7 near here]

In untabulated tests, we also experiment with a 2SLS approach, as suggested by Wooldridge (2001). In the first-stage regression of this approach, we use a probit model to predict whether a firm will receive a positive Employee Treatment Index. We only use control variables in the baseline model; no instruments are included. See Section 18.4.1 of Wooldridge (2001) for details. Because no instruments are used in the first-stage regression, identification is achieved through the nonlinearity of the probit model. A potential problem with this identification strategy is that it could increase multicollinearity among the regressors. However, this problem does not bias the estimates, but only increases the standard error of the model estimates, which reduces the chance of detecting a significant correlation between leverage and employee treatment. In the second-stage regression, we use the leverage ratio as the dependent variable and the predicted likelihood from the first-stage regression as an instrumented variable. We obtain results that are similar to those in Table 7.

We also estimate the 2SLS tests in Table 7 separately for each year and obtain a negative and significant coefficient on the Employee Treatment Index for each year.

5.2.3. Effect of changes in the Employee Treatment Index on change in leverage

To further eliminate the concern that our results suffer from the endogeneity bias, we examine the effect of changes in the Employee Treatment Index and other explanatory variables on the change in leverage. There are some advantages to using this approach. First, given that firm characteristics are constant over a certain period, we can control for the effect of unobserved firm characteristics on a firm's leverage. Second, the evidence in recent capital structure studies (e.g., Leary and Roberts, 2005) suggests that adjustment costs affect the capital structure decisions of firms. As firms do not adjust their capital structure frequently, we are more likely to pick up the effects of changes in the Employee Treatment Index on capital structure by examining changes in the leverage ratio over a longer period.

We use an approach similar to that of Kayhan and Titman (2007). The dependent variable is the change in a firm's debt ratio from year *t*-*d* to *t*, and the independent variables are the changes in the explanatory variables from year *t*-*d* to *t*. In addition, we split the *d*-year change in the Employee Treatment Index into annual changes so that we can examine how the year-to-year changes in the Employee Treatment Index contribute to changes in the debt ratio. Our results are reported in Table 8. We estimate the *p*-values for the coefficients based on the bootstrapped standard errors.

[Insert Table8 near here]

In Regression 1, we use changes over a three-year period. The dependent variable is the change in leverage between year *t*-3 and year *t*. We decompose the change in the Employee Treatment Index between year *t*-3 and year *t* into those between year *t*-3 and year *t*-2, year *t*-2 and year *t*-1, and year *t*-1 and year *t*. We then use these change variables as our key independent variables. We find that the effect of the change in the Employee Treatment Index on leverage change is largest in magnitude from year *t*-3 to year *t*-2, followed by from year *t*-2 to year *t*-1. The change in the Employee Treatment Index from year *t*-1 to year *t* does not affect the change in leverage. Regression 2 uses changes over a two-year period. We find that the changes in the Employee Treatment Index between year *t*-2 and year *t*-1 and between year *t*-1 and year *t* are negatively related to changes in leverage. Regression 3 uses changes over a one-year period. We find that the change in the Employee Treatment Index between year *t*-1 and year *t* is negatively related to the change in leverage during the same period. Overall, the results in Table 8 suggest that the changes in the Employee Treatment Index affect the changes in leverage in subsequent years. These results are generally consistent with those reported in Table 4 that show the causal effect between the change in leverage and the change in the Employee Treatment Index.

5.2.4. Alternative explanations

To the extent that the firm fixed effect and the 2SLS regressions cannot completely resolve the omitted variable bias, we perform several additional tests to rule out alternative explanations for our results. First, Berger, Ofek, and Yermack (1997) find that firms with entrenched managers tend to maintain lower leverage. Cronqvist, Low, and Nilsson (2007) find that entrenched managers tend to treat employees more generously. These results suggest that the Employee Treatment Index captures managerial entrenchment, not a firm's reputation for providing fair employee treatment. To investigate this possibility, we add a governance index to Regression 2 of Table 2 and reestimate the regression. We report our results in Regression 1 of Table 9. The governance index data are from Gompers, Ishii, and Metrick (2003), a higher governance index indicating poorer governance. Consistent with Berger, Ofek, and Yermack (1997), the coefficient of the governance index is negative with a *p*-value of 0.11. The coefficient estimate of the Employee Treatment Index is still negative and highly significant, which suggests that our results are not driven by the correlation between the Employee Treatment Index and managerial entrenchment.

It is also possible that the Employee Treatment Index captures management quality. High-quality managers could want to treat their employees more generously because they have stronger incentives to increase firm value by providing better employee motivation. Furthermore, to the extent that debt serves as the controlling mechanism that prevents managers from wasting free cash (Jensen, 1986), firms with high-quality management could need less debt. The extent of this free cash flow problem is likely to vary across industries and firm characteristics. For example, product market competition can incentivize managers to be more efficient (Graham, Kaplan, and Sibley, 1983; Nickell, 1996; and Berger and Hannan, 1998), and therefore firms in more competitive industries are expected to have fewer free cash flow problems. This argument suggests that if the Employee Treatment Index acts as a proxy for management quality, the negative relation between leverage and employee treatment should be more pronounced for firms in less competitive industries than for those in more competitive industries. However, as shown in Panel F of Table 5, the negative relation between leverage and employee treatment is stronger for firms in more competitive industries, suggesting that a management quality effect is unlikely to fully explain the negative relation between these two variables.

[Insert Table 9 near here]

Second, when contracts are incomplete, ex post bargaining can arise after the firm and the stakeholders have made relation-specific investments. Hence, the firm can use capital structure to affect the outcome of such bargaining. For example, Broners and Deere (1991), Dasgupta and Sengupta (1993), and Perotti and Spier (1993) show that leverage can mitigate the wage demands of labor unions. Thus, our results could be due to the power of the unions. However, the Employee Treatment Index is positively related to the power of the unions. Because a strong union predicts higher leverage and a high Employee Treatment Index predicts lower leverage, the negative relation between leverage and the Employee Treatment Index is not likely to be driven by the power of the unions. Nevertheless, we control for the power of the unions in the regression. Following Klasa, Maxwell, and Ortiz-Molina (2009), we use the industry unionization rate as our proxy for the power of unions. We report our results in Regression 2. We find that the unionization rate is positively and significantly related to the leverage ratio. However, controlling for the unionization rate does not affect the significance of the coefficient of the Employee Treatment Index.

Third, in Regression 3, we add the interaction of the governance index and the unionization rate. We include this interaction variable to examine whether entrenched managers, to increase their private benefits, forgo using leverage to mitigate the demands of unions. Consistent with this conjecture, we find that the coefficient of this interaction term is negative and significant. However, the coefficient of the Employee Treatment Index is still negative and highly significant.

Fourth, Faleye, Mehrotra, and Morck (2006) find that employee stock ownership gives workers a voice in corporate governance. They also find that, relative to other firms, labor-controlled publicly traded firms deviate more from value maximization, invest less in long-run assets, and take fewer risks. It is possible that firms with more employee stock ownership tend to be overly risk-averse and, as a result, maintain lower leverage. To address this issue, we use Form 5500 provided by the US Department of Labor to collect data on the market value of the equity held by employees. We estimate employee stock ownership as the market value of equity held by employees scaled by the firm's total market value of equity. We collect these data only for the year 2006, which is the most recent year for which data are available. We add employee stock ownership as an explanatory variable and report the results in Regression 4. Consistent with the Faleye, Mehrotra, and Morck (2006) finding that labor-controlled firms take less risk, we find that the coefficient of employee stock ownership is negative and significant (i.e., labor-controlled firms maintain lower leverage to avert risk). However, including employee stock ownership in the regression does not change the significance of the coefficient of the Employee Treatment Index.

Fifth, Graham (1996) finds that a firm's marginal tax rate is positively related to its debt issuances, and Graham, Lang, and Shackelford (2004) find that, at least for some firms, a deduction in employee stock options reduces the marginal tax rate. We obtain data on a firm's marginal tax rate from Graham (1996) and use the marginal tax rate before interest expenses as an additional explanatory variable. Regression 5 shows the results. Consistent with Graham (1996), the coefficient estimate of the marginal tax rate is positive and significant, suggesting that debt serves as a tax shelter. Nevertheless, the significance of the coefficient on the Employee Treatment Index does not change.

Sixth, Banerjee, Dasgupta, and Kim (2008) find that firms that depend on sales to major customers tend to maintain lower leverage ratios to reduce the customers' concerns that the firm could be liquidated. To see if our results are driven by this effect, we use firms' sales to their major customers scaled by total sales as an additional explanatory variable in our regression model. As in Banerjee, Dasgupta, and Kim (2008), we define large customers as those that account for at least 10% of a firm's sales. We calculate sales to large customers as the sum of sales to each individual large customer reported by the firm. Because Banerjee, Dasgupta, and Kim (2008) find that sales to government have no effect on the capital structure of firms, we exclude such sales in the analyses. Regression 6 reports the results. Consistent with the Banerjee, Dasgupta, and Kim (2008) finding, we observe that sales to large customers are negatively and significantly related to leverage. The coefficient of the Employee Treatment Index is also negative and significant. Because both sales to large customers and the Employee Treatment Index act as proxies for the importance of stakeholders to a firm, we compare the magnitude of their impact on the leverage ratio and find that the Employee Treatment Index has a greater effect than sales to large customers. For example, an increase in sales to large customers of one standard deviation leads to a 0.77 percentage-point reduction in the leverage ratio. In comparison, an increase in the Employee Treatment Index of one standard deviation leads to reduction in the leverage ratio of almost 2.1 percentage points. Hence, the effect of the Employee Treatment Index on a firm's leverage is about three times larger than the corresponding effect of sales to large customers.

Seventh, the Employee Treatment Index could act as a proxy for asset tangibility. Firms that use labor as their main input could treat employees more generously than firms that hardly use labor. To the extent that these firms invest less in physical assets and thus have fewer collaterals that can be used to support their debt financing, they could have less ability to use debt. Although we include the fixed assets to total assets ratio in the previous regressions to reduce this concern, in untabulated tests we also add three different measures of the importance of labor to total input into the regressions to further control for asset tangibility: labor expenses over a three-year average of capital expenditures, labor expenses over depreciations, and labor expenses over costs of goods sold. Qian (2003) also uses these variables as measures of the importance of labor in total input. We use industry-level wage rate multiplied by firm-level total employees as the measure of labor expenses. We find that the coefficient on the Employee Treatment Index is not affected by including these measures in the regressions.

Finally, we are concerned that positive Employee Treatment Index firms could be fundamentally different from zero Employee Treatment Index firms in some unobserved firm characteristics. To address this concern, in untabulated tests, we reestimate our regressions in Table 2 using a subsample of positive Employee Treatment Index firms only. We find that the coefficient on the Employee Treatment Index is still negative and significant for this subsample.

6. Conclusion

Despite the well-developed literature on the stakeholder theory of capital structure, few large-sample empirical studies examine how a firm's relations with nonfinancial stakeholders affect its capital structure. Notable exceptions are Kale and Shahrur (2007) and Banerjee, Dasgupta, and Kim (2008), who show that customer-supplier relations play an important role in shaping a firm's financing policy.

In this paper we investigate the stakeholder theory of capital structure from the perspective of a firm's relations with its employees and show that a firm's reputation for providing fair employment treatment matters for its capital structure decision. We find that, as measured by an Employee Treatment Index, firms that implement employee-friendly policies maintain low debt ratios. This negative relation between leverage and a firm's reputation for treating employees well is also evident when we measure its reputation by whether it is included in the *Fortune* magazine list, "100 Best Companies to Work For" and is robust to a variety of model specifications and endogeneity issues. We also find that the negative relation between leverage and the Employee Treatment Index is more pronounced when a firm is more likely to suffer from financial distress, a firm's assets have less availability of alternative uses, and the importance of employees in a firm's businesses is greater. Overall, these results support the stakeholder theory of capital structure.

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Table 1 Summary statistics on firm characteristics

This table provides summary statistics on the firm characteristics of the sample. The sample includes all firms covered by the KLD Research & Analytics, Inc. (KLD) SOCRATES database between 2003 and 2007. The SOCRATES database contains KLD ratings on firms' employee relations, including union relations, cash profit sharing, employee involvement, retirement benefits, and health and safety. KLD assigns a 0/1 rating for each of these five categories of employee relations. We form the Employee Treatment Index by summing up these 0/1 ratings, with a high Employee Treatment Index score indicating better employee treatment. To be included in the sample, the firm must be covered in Compustat. We exclude firms in regulated industries [i.e., standard industrial classification (SIC) codes between 6000 and 6999 and between 4900 and 4999] and firms with missing information on total assets. For each sample firm with a positive Employee Treatment Index score, using the first two digits of the SIC code, we select a zero Employee Treatment Index firm of asset size similar to the matching firm from the groups of same industry firms. The Appendix provides a detailed description of the construction of the variables. *N* denotes the number of firm-year observations. Numbers in parentheses are *p*-values.

Variables	All sample firms (*N* = 10,562)		Sample firms with Employee Treatment Index > 0: A (*N* = 1,637)		Matching firms with Employee Treatment Index = 0: B (*N* = 1,637)		Test of difference (A - B)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Leverage								
Long-term debt / (total debt + market value of equity) (percent)	11.258	7.131	10.071	7.499	13.616	10.487	(0.00)	(0.00)
Long-term debt / book value of total assets (percent)	18.024	13.687	16.810	14.706	21.711	18.981	(0.00)	(0.00)
Control variables								
Total book value of assets (millions of dollars)	3,424	782	9,525	2,868	7,756	3,198	(0.00)	(0.22)
Sales (millions of dollars)	3,194	740	8,392	2,276	6,463	2,587	(0.00)	(0.25)
Market value of equity / book value of equity	3.562	2.522	3.670	2.745	3.361	2.653	(0.01)	(0.41)
Fixed assets / total assets (percent)	24.492	17.197	26.299	18.737	25.023	18.250	(0.09)	(0.70)
Return on assets (percent)	2.406	4.916	4.401	5.987	4.175	5.195	(0.57)	(0.00)
Dividend dummy that equals one if dividend is paid	0.367	0.000	0.525	1.000	0.512	1.000	(0.45)	(0.45)
Total sales / total assets	1.038	0.884	0.939	0.799	0.949	0.825	(0.66)	(0.25)
R&D expenditures / total sales (percent)	21.194	0.308	15.994	2.259	13.517	1.452	(0.32)	(0.00)
Selling, general, and administrative expenses / total sales (percent)	30.101	23.725	28.306	23.573	25.376	20.774	(0.00)	(0.00)
Other firm characteristics								
Sales growth (percent)	17.725	10.999	14.262	10.343	18.389	11.178	(0.00)	(0.05)
Labor and related expenses per worker (thousands of dollars)	58.201	49.184	73.973	74.831	67.374	62.804	(0.09)	(0.11)
Pension expenses per worker (thousands of dollars)	1.918	1.177	3.362	2.361	2.608	1.686	(0.00)	(0.00)
Employee options per worker (thousands of dollars)	7.275	1.295	12.422	2.753	5.352	1.078	(0.00)	(0.00)

Sales to large customers / total sales (percent)	17.365	0	18.676	0.972	15.281	0	(0.00)	(0.00)

Table 2 The relation between leverage and employee treatment

This table presents the results of panel regressions in which we regress the long-term debt ratio on a set of debt determinants and the Employee Treatment Index (a variable that measures employee treatment). The Appendix provides a detailed description of the construction of the variables. All regressions include year dummies, but we do not report their coefficient estimates. In Regressions 1 through 3 and 5 through 7 we use market long-term debt ratio as the dependent variable. In Regressions 4 and 8 we use book long-term debt ratio as the dependent variable. With the exception of Regressions 3 and 7, all of the regressions use the sample of firms covered by the KLD Research & Analytics, Inc. (KLD) SOCRATES database between 2003 and 2007; Regressions 3 and 7 use Standard & Poor's 500 firms covered by the KLD SOCRATES database between 1995 and 2007. The *p*-values in parentheses are based on standard errors that are heteroskedasticity-consistent and allow for clustering at the firm level.

	Including lagged leverage ratio in the regression				Excluding lagged leverage ratio in the regression			
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employee Treatment Index		-0.835	-0.169	-1.509		-3.360	-1.418	-4.935
		(0.00)	(0.07)	(0.00)		(0.00)	(0.00)	(0.00)
Long-term debt / (total debt + market value of equity)$_{t-1}$	0.805	0.800	0.832					
	(0.00)	(0.00)	(0.00)					
Long-term debt / total book value of assets$_{t-1}$				0.750				
				(0.00)				
Market value of equity / book value of equity	-0.091	-0.086	-0.100	0.249	-0.095	-0.077	-0.281	0.977
	(0.00)	(0.00)	(0.00)	(0.00)	(0.06)	(0.12)	(0.00)	(0.00)
Log of sales	0.272	0.394	0.148	0.888	1.810	2.259	0.917	3.337
	(0.00)	(0.00)	(0.03)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Fixed assets / total assets	0.006	0.007	0.006	0.035	0.104	0.105	0.071	0.160
	(0.10)	(0.06)	(0.14)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Return on assets	-0.108	-0.107	-0.115	-0.178	-0.380	-0.372	-0.420	-0.447
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
R&D expenditures / total sales	-0.006	-0.005	-0.037	-0.008	-0.008	-0.006	-0.225	-0.009
	(0.00)	(0.00)	(0.00)	(0.00)	(0.09)	(0.20)	(0.00)	(0.14)
Selling, general, and administrative expenses / total sales	-0.028	-0.026	-0.005	-0.038	-0.142	-0.133	-0.083	-0.161
	(0.00)	(0.00)	(0.43)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Dividend dummy that equals one if dividend is paid	0.033	0.047	0.263	0.231	-1.567	-1.470	-0.273	-1.504
	(0.82)	(0.75)	(0.14)	(0.25)	(0.00)	(0.00)	(0.68)	(0.01)
Total sales / total assets	-1.143	-1.272	-0.687	-2.318	-4.043	-4.487	-2.867	-6.960
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Intercept	4.068	3.561	3.771	1.687	7.563	5.225	11.649	2.600

	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.12)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	9,023	9,023	4,786	9,291	9,023	9,023	4,786	9,291
Adjusted R^2	0.78	0.78	0.80	0.74	0.28	0.30	0.33	0.29

Table 3 The extent to which the variation in leverage ratio is due to across-time variation in the Employee Treatment Index, across-firm variation in the Employee Treatment Index, within-industry variation in the Employee Treatment Index, or across-industry variation in the Employee Treatment Index

This table presents the results of panel regressions in which we regress the long-term debt ratio on a set of debt determinants and the Employee Treatment Index (a variable that measures employee treatment) and shows the extent to which the variation in leverage ratio is due to the time series variation in the Employee Treatment Index within a firm, the cross-sectional variation in the Employee Treatment Index across firms, the variation in the Employee Treatment Index within an industry, or the variation in the Employee Treatment Index across industries. The Appendix provides a detailed description of the construction of the variables. Models 1 and 2 estimate firm fixed regressions with and without a lagged leverage ratio, respectively. In Model 3, we compute the time series averages of long-term debt ratio and explanatory variables over the sample period for each firm and then estimate a cross-sectional regression of average long-term debt ratio on average explanatory variables. Models 4 and 5 estimate industry fixed regressions with and without a lagged leverage ratio, respectively. We define the industry by the first two digits of its standard industrial classification (SIC) code. In Model 6, we compute the averages of long-term debt ratio and explanatory variables over the sample period for firms that belong to the same three-digit SIC code industry and then estimate a cross-sectional regression of average long-term debt ratio on average explanatory variables. The *p*-values in parentheses are based on standard errors that are heteroskedasticity-consistent and allow for clustering at the firm level except for Models 3 and 6.

	Firm fixed effect		Across firm effect	Industry fixed effect		Across industry effect
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Employee Treatment Index	-0.407	-0.648	-4.569	-0.629	-2.579	-3.384
	(0.04)	(0.01)	(0.00)	(0.00)	(0.00)	(0.04)
Long-term debt / (total debt + market value of equity)$_{t-1}$	0.313			0.773		
	(0.00)			(0.00)		
Market value of equity / book value of equity	-0.146	-0.143	0.071	-0.076	-0.041	-0.102
	(0.00)	(0.00)	(0.33)	(0.00)	(0.39)	(0.74)
Log of sales	2.312	2.732	2.739	0.307	1.757	2.633
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Fixed assets / total assets	0.082	0.111	0.123	0.004	0.100	0.091
	(0.00)	(0.00)	(0.00)	(0.50)	(0.00)	(0.02)
Return on assets	-0.162	-0.190	-0.333	-0.111	-0.329	-0.536
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
R&D expenditures / total sales	-0.000	-0.000	0.001	-0.004	-0.005	-0.088
	(0.96)	(0.97)	(0.76)	(0.01)	(0.17)	(0.06)
Selling, general, and administrative expenses / total sales	-0.033	-0.036	-0.124	-0.035	-0.128	-0.158
	(0.03)	(0.04)	(0.00)	(0.00)	(0.00)	(0.00)
Dividend dummy that equals one if dividend is paid	0.397	-0.435	-1.701	-0.048	-2.225	-1.463
	(0.36)	(0.39)	(0.00)	(0.76)	(0.00)	(0.37)

Total sales / total assets	-7.751	-8.163	-4.802	-1.663	-4.965	-5.012
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Intercept	0.458	1.966	1.412	5.178	8.863	6.431
	(0.91)	(0.66)	(0.27)	(0.00)	(0.00)	(0.17)
Year dummies	Yes	Yes	No	Yes	Yes	No
Number of observations	9,023	9,023	2580	9,023	9,023	235
Adjusted R^2	0.18	0.15	0.33	0.78	0.39	0.42

Table 4 Test of causal effects between the change in leverage and the change in the Employee Treatment Index

This table presents the results of panel regressions in which we regress the long-term debt ratio (Employee Treatment Index) on a set of debt determinants and the Employee Treatment Index (long-term debt ratio) and examines the causal effect between the change in leverage and the change in the Employee Treatment Index. The Appendix provides a detailed description of the construction of the variables. All variables are first difference from prior year. In Regression 1, the change in long-term debt ratio between year *t*-1 and year *t* is regressed on the changes in the Employee Treatment Index between year *t*-1 and year *t*, between year *t*-2 and year *t*-1, and between year *t*-3 and year *t*-2 and the changes in other control variables between year *t*-1 and year *t*. In Regression 2, the change in the Employee Treatment Index between year *t*-1 and year *t* is regressed on the changes in long-term debt ratio between year *t*-1 and year *t*, between year *t*-2 and year *t*-1, and between year *t*-3 and year *t*-2 and the changes in other control variables between year *t*-1 and year *t*. The *p*-values in parentheses are based on standard errors that are heteroskedasticity-consistent and allow for clustering at the firm level.

	Dependent variable	
	Change in long-term debt ratio between year *t*-1 and year *t*	Change in the Employee Treatment Index between year *t*-1 and year *t*
Variables	(1)	(2)
Change in Employee Treatment Index between year *t*-1 and year *t*	-0.858 (0.00)	
Change in Employee Treatment Index between year *t*-2 and year *t*-1	-0.193 (0.50)	
Change in Employee Treatment Index between year *t*-3 and year *t*-2	-0.750 (0.01)	
Change in long-term debt / (total debt + market value of equity) between year *t*-1 and year *t*		-0.003 (0.01)
Change in long-term debt / (total debt + market value of equity) between year *t*-2 and year *t*-1		-0.000 (0.97)
Change in long-term debt / (total debt + market value of equity) between year *t*-3 and year *t*-2		-0.001 (0.63)
Change in market value of equity / book value of equity between year *t*-1 and year *t*	-0.128 (0.10)	-0.007 (0.09)
Change in log of sales between year *t*-1 and year *t*	5.225 (0.00)	0.006 (0.87)
Change in fixed assets / total assets between year *t*-1 and year *t*	0.090 (0.02)	-0.000 (0.97)
Change in return on assets between year *t*-1 and year t	-0.191 (0.00)	-0.001 (0.45)
Change in R&D expenditures / total sales between year *t*-1 and year *t*	0.000 (1.00)	-0.001 (0.33)
Change in selling, general, and administrative expenses / total sales between year *t*-1 and year *t*	-0.026 (0.26)	-0.001 (0.53)
Change dividend dummy that equals one if dividend is paid between year *t*-1 and year *t*	0.701 (0.31)	0.030 (0.34)
Change in total sales / total assets between year *t*-1 and year *t*	-11.568 (0.00)	-0.003 (0.95)

Intercept	0.262 (0.14)	0.049 (0.00)
Number of observations	2,663	2,644
Adjusted R^2	0.19	0.00
Wald tests for the null hypothesis that lagged Employee Treatment Index (debt ratio) are jointly equal to zero	(0.031)	(0.892)

Table 5 The effect of firm or industry characteristics on the relation between leverage and the Employee Treatment Index

This table presents the results of panel regressions across subsamples of firms sorted by several firm or industry characteristics. We regress the long-term market leverage ratio on a set of debt determinants and the Employee Treatment Index (a variable that measures employee treatment). The sample includes all of the firms covered by the KLD Research & Analytics, Inc. SOCRATES database between 2003 and 2007. The Appendix provides a detailed description of the construction of the variables. All of the regressions include explanatory variables used in Regression 2 of Table 2, but we do not report their coefficient estimates except for the coefficient estimate on the Employee Treatment Index. In all regressions except for those using either total sales or an indicator variable for firm or industry characteristics as the classification criterion, each year, we define firms with certain characteristics in the top 30th percentile of the sample as high-characteristic firms and those with certain characteristics in the bottom 30th percentile of the sample as low-characteristic firms. For the analysis using a firm's total sales as the classification criterion, we use the sample median of sales as our cutoff point. The *p*-values in parentheses are based on standard errors that are heteroskedasticity-consistent and allow for clustering at the firm level.

Firm or industry characteristics	High-characteristic firms (or indicator = 1): A	Low-characteristic firms (or indicator = 0): B	Test of equal coefficients between A and B
Panel A: Growth opportunity			
Market-to-book ratio			
Coefficient on Employee Treatment Index	-0.499	-1.109	(0.03)
p-value	(0.00)	(0.00)	
Adjusted R^2	0.77	0.77	
Number of observations	2,559	2,789	
Industry sales growth rate (over the past three years)			
Coefficient on Employee Treatment Index	-1.316	-0.910	(0.94)
p-value	(0.00)	(0.00)	
Adjusted R^2	0.75	0.79	
Number of observations	2,134	2,070	
Panel B: Free cash flow problem			
High free cash flow and low Tobin's q (indicator): Tobin's q measured at the firm level			
Coefficient on Employee Treatment Index	-0.960	-0.744	(0.58)
p-value	(0.01)	(0.00)	
Adjusted R^2	0.71	0.78	
Number of observations	1,540	6,153	
High free cash flow and low industry Tobin's q (indicator): Tobin's q measured at the industry level			
Coefficient on Employee Treatment Index	-0.748	-0.782	(0.91)
p-value	(0.01)	(0.00)	
Adjusted R^2	0.77	0.78	
Number of observations	1,299	7,724	
G-Index (Gompers, Ishii, and Metrick, 2003)			
Coefficient on Employee Treatment Index	-0.660	-0.536	(0.66)
p-value	(0.00)	(0.02)	
Adjusted R^2	0.79	0.78	
Number of observations	2,602	2,724	
Equity ownership by institutional investors (13f holdings)			
Coefficient on Employee Treatment Index	-1.007	-0.790	(0.57)
p-value	(0.00)	(0.01)	
Adjusted R^2	0.79	0.77	
Number of observations	2,838	2,412	

Panel C: Financial distress			
Total sales			
Coefficient on Employee Treatment Index	-0.426	-0.901	(0.09)
p-value	(0.00)	(0.00)	
Adjusted R^2	0.80	0.73	
Number of observations	4,749	4,274	
Proportion of firms with a negative EBIT in the industry			
Coefficient on Employee Treatment Index	-0.835	-0.276	(0.11)
p-value	(0.00)	(0.38)	
Adjusted R^2	0.76	0.81	
Number of observations	5,299	1,196	
Panel D: Availability of alternative uses of assets			
Firm R&D intensity			
Coefficient on Employee Treatment Index	-0.856	0.150	(0.01)
p-value	(0.00)	(0.61)	
Adjusted R^2	0.59	0.82	
Number of observations	1,493	1,845	
Existence of large customers (indicator)			
Coefficient on Employee Treatment Index	-1.108	-0.571	(0.04)
p-value	(0.00)	(0.00)	
Adjusted R^2	0.74	0.78	
Number of observations	2,633	2,022	
Panel E: Importance of employee retention			
Industry employee turnover (indicator)			
Coefficient on Employee Treatment Index	-0.195	-0.867	(0.04)
p-value	(0.52)	(0.00)	
Adjusted R^2	0.80	0.75	
Number of observations	2,963	5,020	
Industry competition (indicator)			
Coefficient on Employee Treatment Index	-0.970	-0.436	(0.09)
p-value	(0.00)	(0.11)	
Adjusted R^2	0.79	0.75	
Number of observations	4,778	849	
Employee option			
Coefficient on Employee Treatment Index	-0.591	-0.336	(0.45)
p-value	(0.02)	(0.13)	
Adjusted R^2	0.67	0.80	
Number of observations	1,722	1,574	

Table 6 Test of the difference in leverage between firms in *Fortune* Magazine's "100 Best Companies to Work For" and matching firms in Compustat based on propensity score

This table presents the test of the difference in leverage between firms in *Fortune* magazine's list of "100 Best Companies to Work For" and matching firms in Compustat. The sample includes all publicly traded firms that are in *Fortune*'s "100 Best Companies to Work For" from 1998 to 2008. We match each firm in *Fortune*'s list with a firm that is in Compustat but not in *Fortune*'s list using the nearest neighborhood, a Gaussian kernel, and local linear regression matching approaches. The variables we use in matching are market-to-book ratio, log of sales, fixed assets to total assets, return on assets, research and development (R&D) expenditures to sales, sales, general and administrative expenses to sales, a dividend-paying dummy that equals one if the firm pays a dividend, sales to total assets, pension and retirement expenses per worker, industry dummies (two-digit standard industrial classification code), and year dummies. In Panel A, we do not winsorize the variables we use in matching, and in Panel B, we winsorize these variables at 1% and 99% levels. Bootstrapped standard errors are based on 50 replications with replacement. The *p*-values are in parentheses. Bias-corrected 95% confidence intervals are in brackets.

Variables	Nearest neighborhood	Gaussian kernel	Local linear Regression
Panel A: Without winsorization			
Long term debt / (total debt + market value of equity)	-6.858	-6.169	-6.984
	(0.00)	(0.00)	(0.00)
	[-8.317, -5.256]	[-7.121, -5.748]	[-8.021, -6.331]
Long term debt / total book value of assets	-8.201	-5.055	-7.164
	(0.00)	(0.00)	(0.00)
	[-10.595, -7.047]	[-6.539, -4.093]	[-8.582, -6.359]
Panel B: With winsorization			
Long term debt / (total debt + market value of equity)	-4.959	-4.709	-4.430
	(0.00)	(0.00)	(0.00)
	[-5.924, -3.347]	[-5.568, -4.323]	[-5.449, -3.765]
Long term debt / total book value of assets	-4.418	-4.330	-5.233
	(0.00)	(0.00)	(0.00)
	[-5.720, -2.882]	[-5.257, -3.386]	[-6.586, -4.199]

Table 7 The relation between leverage and the Employee Treatment Index: instrumental variable regression

This table presents the results from two-stage least square regressions that control for the endogeneity of the relation between leverage and the Employee Treatment Index (a variable that measure employee treatment). The dependent variable is the long-term market leverage ratio. The sample includes all of the firms covered by the KLD Research & Analytics, Inc. SOCRATES database between 2003 and 2007. The Appendix provides a detailed description of the construction of the variables. The first-stage regression estimates the model in which we regress the Employee Treatment Index on the control variables and instrumental variables. In the second-stage regression we estimate the model in which we regress the leverage ratio on the predicted Employee Treatment Index together with other determinants of leverage ratios. All of the regressions include year dummies, but we do not report their coefficient estimates. The *p*-values in parentheses are based on standard errors that are heteroskedasticity-consistent and allow clustering at the firm level. The *p*-value for Hansen's *J* statistic is reported when applicable.

Variables	(1)		(2)		(3)		(4)	
	First stage	Second stage	First stage	Second stage	First stage	Second stage	First stage	Second stage
Predicted Employee Treatment Index		-8.021		-5.222		-4.623		-7.721
		(0.00)		(0.00)		(0.00)		(0.00)
Long-term debt / (total debt + market value of equity)$_{t-1}$	-0.007	0.754	-0.008	0.761	-0.008	0.764	-0.006	0.757
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Market value of equity / book value of equity	0.002	-0.081	-0.000	-0.044	-0.000	-0.058	0.004	-0.057
	(0.63)	(0.03)	(0.97)	(0.26)	(0.99)	(0.15)	(0.05)	(0.03)
Log of sales	0.160	1.610	0.173	1.159	0.156	1.026	0.153	1.458
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Fixed assets / total assets	0.002	0.024	0.002	0.022	0.002	0.017	0.001	0.019
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)
Return on assets	0.001	-0.113	0.003	-0.141	0.003	-0.157	0.001	-0.096
	(0.32)	(0.00)	(0.07)	(0.00)	(0.07)	(0.00)	(0.36)	(0.00)
R&D expenditures / total sales	0.002	-0.002	0.005	-0.009	0.004	-0.014	0.001	-0.001
	(0.00)	(0.64)	(0.04)	(0.52)	(0.05)	(0.32)	(0.00)	(0.54)
Selling, general, and administrative expenses / total sales	0.001	-0.003	-0.000	-0.007	0.000	-0.010	0.002	-0.009
	(0.11)	(0.75)	(0.98)	(0.50)	(0.98)	(0.32)	(0.00)	(0.27)
Dividend dummy that equals one if dividend is paid	-0.032	-0.278	-0.028	0.088	-0.033	0.142	0.018	0.057
	(0.17)	(0.30)	(0.31)	(0.73)	(0.22)	(0.56)	(0.37)	(0.79)
Total sales / total assets	-0.131	-2.373	-0.140	-1.795	-0.122	-1.728	-0.140	-2.254
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Intercept	-1.581	-4.654	-1.691	-2.771	-1.267	-1.752	-1.510	-4.032
	(0.00)	(0.00)	(0.00)	(0.07)	(0.00)	(0.15)	(0.00)	(0.02)

Instrumental variable								
Industry wage rate	0.045 (0.01)		0.052 (0.01)				0.071 (0.00)	
Logarithm of pension and retirement expenses per $\text{Worker}_{t\text{-}5}$	0.054 (0.00)				0.068 (0.00)			
Logarithm of pension and retirement expenses per $\text{Worker}_{t\text{-}10}$			0.049 (0.00)		0.015 (0.32)			
Number of observations	5,187	5,187	3,820	3,820	3,688	3,688	8,357	8,357
Adjusted R^2	0.21	0.70	0.22	0.74	0.21	0.75	0.18	0.70
J-statistic (*p*-value)		0.37		0.28		0.59		-

Table 8 Effect of year-by-year changes in the Employee Treatment Index on multiple-year changes in leverage

This table presents the results of a multiple-year change test in which we regress changes in the long-term market leverage ratio on changes in a set of debt determinants and the Employee Treatment Index (a variable that measures employee treatment). The sample includes all of the firms covered by the KLD Research & Analytics, Inc. SOCRATES database between 2003 and 2007. The Appendix provides a detailed description of the construction of the variables. We estimate the deviation of the leverage ratio from the predicted leverage ratio by subtracting the predicted leverage ratio from the actual leverage ratio at year *t-d*, where *d* is the number of years over which we measure the change. For Regressions 1, 2, and 3, *d* is equal to three, two, and one, respectively. We estimate the predicted value of leverage at year *t-d* by using a cross-sectional regression of the leverage ratio at year *t-d* on a set of debt determinants and the Employee Treatment Index. All of the regressions include year dummies, but we do not report their coefficient estimates. We replicate the regression for each column one thousand times by drawing firm clustering, with replacement, from the sample. The *p*-values in parentheses are obtained by using the standard error of the bootstrap sample coefficient estimates.

	d=3 (1)	d=2 (2)	d=1 (3)
Change in Employee Treatment Index between year *t*-3 and year *t*-2	-1.901 (0.00)		
Change in Employee Treatment Index between year *t*-2 and year *t*-1	-1.021 (0.02)	-0.836 (0.01)	
Change in Employee Treatment Index between year *t*-1 and year *t*	-0.643 (0.17)	-0.930 (0.00)	-0.571 (0.00)
Change in market value of equity / book value of equity between year *t-d* and year *t*	-0.111 (0.10)	-0.152 (0.00)	-0.110 (0.01)
Change in log of sales between year *t*-d and year *t*	2.131 (0.01)	2.453 (0.00)	3.213 (0.00)
Change in fixed assets / total assets between year *t-d* and year *t*	0.067 (0.03)	0.081 (0.00)	0.090 (0.00)
Change in return on assets between year *t-d* and year *t*	-0.299 (0.00)	-0.241 (0.00)	-0.150 (0.00)
Change in R&D expenditures / total sales between year *t-d* and year *t*	-0.006 (0.85)	-0.005 (0.74)	0.001 (0.88)
Change in selling, general, and administrative expenses / total sales between year *t-d* and year *t*	-0.048 (0.14)	-0.043 (0.05)	-0.026 (0.05)
Change dividend dummy that equals one if dividend is paid between year *t-d* and year *t*	-1.419 (0.02)	-0.784 (0.09)	0.338 (0.39)
Change in total sales / total assets between year *t-d* and year *t*	-7.323 (0.00)	-7.671 (0.00)	-8.792 (0.00)
Deviation of long term debt / (total debt + market value of equity) from predicted level at year *t-d*	-32.305 (0.00)	-22.209 (0.00)	-11.822 (0.00)
Intercept	0.055 (0.88)	0.261 (0.29)	0.498 (0.00)
Number of observations	2,609	4,375	6,538
Adjusted R^2	0.30	0.25	0.19

Table 9 The relation between leverage and the Employee Treatment Index: controlling for other possible explanations

This table presents the regression results when we control for other possible factors that affect leverage. We regress the long-term market leverage ratio on a set of debt determinants and the Employee Treatment Index (a variable that measures employee treatment). The sample includes all of the firms covered by the KLD Research & Analytics, Inc. SOCRATES database between 2003 and 2007. The Appendix provides a detailed description of the construction of the variables. Except for Regression 4, all of the regressions include year dummies, but we do not report their coefficient estimates. We obtain the governance index from Gompers, Ishii, and Metrick (2003). The industry union coverage is the industry level unionization rate, as used in Klasa, Maxwell, and Ortiz-Molina (2009). Data on equity ownership held by employees are only for the year 2006 and are obtained from Form 5500 provided by the US Department of Labor. We obtain the data on marginal tax rate before interest rates from Graham (1996). Data on sales to major customers (those that account for at least 10% of sales) are from the Compustat business segment file. Sales to major customers are the sum of sales to each individual major customer reported by firms. We exclude sales to government. The *p*-values in parentheses are based on standard errors that are heteroskedasticity-consistent and allow for clustering at the firm level.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Employee Treatment Index	-0.682	-0.871	-0.711	-0.804	-0.929	-0.817
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Governance index	-0.049		0.028			
	(0.11)		(0.52)			
Industry union coverage		0.025	0.117			
		(0.00)	(0.00)			
Governance index*industry union coverage			-0.009			
			(0.02)			
Value of equity held by employees / market value of equity				-0.115		
				(0.00)		
Marginal tax rate before interest expenses					0.020	
					(0.07)	
Sales to major customers / total sales						-0.006
						(0.04)
Long-term debt / (total debt + market value of equity)$_{t-1}$	0.794	0.797	0.788	0.806	0.757	0.800
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Market value of equity / book value of equity	-0.086	-0.087	-0.086	-0.055	-0.095	-0.086
	(0.00)	(0.00)	(0.00)	(0.19)	(0.00)	(0.00)
Log of sales	0.312	0.392	0.301	0.313	0.426	0.379
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Fixed assets / total assets	-0.000	0.006	-0.001	0.018	0.006	0.007
	(0.99)	(0.11)	(0.69)	(0.02)	(0.19)	(0.07)
Return on assets	-0.137	-0.106	-0.136	-0.102	-0.140	-0.108
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
R&D expenditures / total sales	-0.041	-0.006	-0.042	-0.003	-0.015	-0.005
	(0.00)	(0.00)	(0.00)	(0.32)	(0.00)	(0.00)
Selling, general, and administrative expenses / total sales	-0.020	-0.024	-0.016	-0.034	-0.023	-0.027
	(0.00)	(0.00)	(0.03)	(0.01)	(0.00)	(0.00)
Dividend dummy that equals one if dividend is paid	0.014	-0.026	-0.084	0.433	-0.039	0.030
	(0.93)	(0.86)	(0.63)	(0.14)	(0.83)	(0.84)
Total sales / total assets	-1.253	-1.271	-1.247	-1.339	-1.337	-1.287

	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Intercept	4.701	3.443	3.884	2.841	2.614	3.732
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	6,321	9,005	6,305	1,788	4,646	9,023
Adjusted R^2	0.78	0.78	0.78	0.78	0.76	0.78

Appendix Description of variables

Variable	Description	Data source and calculation
Employee Treatment Index	The KLD Research & Analytics, Inc. (KLD) SOCRATES database contains KLD ratings on firms' employee relations, including union relations, cash profit sharing, employee involvement, retirement benefits, and health and safety. KLD assigns a 0/1 rating for each of these five categories. We form the Employee Treatment Index by summing up these 0/1 ratings. A high Employee Treatment Index score indicates better employee treatment.	KLD Research & Analytics, Inc.
Book leverage	Long-term debt / total assets	Compustat: Item 9 / Item6
Dividend dummy	Dummy equal to one if the firm pays common dividend in the particular year and zero otherwise	Compustat: Dummy variable based on Item21
EBIT	Earnings before interest and taxes	Compustat: Item178
Employee options per worker	Value of options granted to nonexecutive employees per worker estimated by Black-Scholes option pricing model	[ExecuComp: BLKSHVAL / PCTTOTOPT * 100 - BLKSHVAL] / [Compustat: Item29], where BLKSHVAL is Black-Scholes option value granted to the top five executives and PCTTOTOPT is the percentage of option granted to the top five executives to the total option granted.
Employee turnover rate	Industry-level voluntary employee turnover rate for 2001	US Department of Labor
Fixed asset / total assets		Compustat: Item8 / Item6
Free cash flow	Operating income before depreciation – interest expense – (income taxes – increase in deferred tax and investment tax credit) – dividends on preferred stocks – dividends on common stocks	Compustat: Item13 – Item15 – (Item 16 – Δitem35) – Item19 – Item21
G-Index	Gompers, Ishii, and Metrick (2003)	Risk Metrics
Equity ownership by institutional investors	Shares owned by institutional investors / total shares outstanding	Thomson Reuters CDA/Spectrum Institutional (13f) Holdings

Industry competition intensity	Industry Herfindahl index based on all Compustat firms, where industries are defined by four-digit standard industrial classification (SIC) codes	-
Labor and related expenses per worker	Labor and related expenses / number of employees	Compustat: Item42 / Item29
Logarithm of sales		Compustat: Log(Item12)
Market-to-book ratio	Market value of equity / book value of equity. Industry market-to-book ratio is equal to industry aggregate market value of equity over industry aggregate book value of equity, where industries are defined by two-digit SIC codes.	Compustat: (Item199 * Item 25) / (Item 216 + Item74 + Item208 – Preferred Stocks), where Preferred Stocks = Item56 (if missing, use Item10; if still missing, use Item130)
Market leverage	Long-term debt / (total debt + market value of equity)	Compustat: Item9 / [Item6 - Item60 + (Item199 * Item25)]
Pension and retirement expenses per worker	Pension and retirement expenses / number of employees	Compustat: Item43 / Item29
R&D expenditures / total sales		Compustat: Item46 / Item 12; if missing, set at zero.
R&D intensity	Research and development expenditures / number of employees. Industry R&D intensity is equal to industry aggregate R&D expenditure over industry aggregate number of employees, where industries are defined by two-digit SIC codes.	Compustat: Item46 / Item29
Sales growth	Geometric mean of sales growth during year *t*-3 to *t*	Compustat: $(\text{Item12}_t / \text{Item12}_{t\text{-}3})^{1/3}$-1
Selling, general and administrative expenses / total sales	Selling, general, and administrative expenses / number of employees	Compustat: Item189 / Item12
Sales to large customers	According to the Statement of Financial Accounting Standard No. 14 of the Financial Accounting Standards Board, firms are required to disclose the names of principal customers, if the sales revenue from a particular customer exceeds 10% of total revenue of the firm or if the firm considers the sales to the customer important to its business. Sales to large customers are the sum of sales revenue generated from sales to all principal customers.	Compustat business segments files

Tobin's q	(Book value of assets – book value of equity + market value of equity) / book value of assets. Industry Tobin's q is equal to industry aggregate market value of assets over industry aggregate book value of assets, where industries are defined by two-digit SIC codes.	Compustat: (Item6 – Item216 + Item199 * Item25) / Item6
Total assets	Liabilities and stockholders' equity	Compustat: Item6
Total sales		Compustat: Item12