

Employee well-being, firm leverage, and bankruptcy risk

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Abstract

Employees of liquidating firms are likely to lose income and non-pecuniary benefits of working for the firm, which makes bankruptcy costly for employees. This paper examines whether firms take these costs into account when deciding on the optimal amount of leverage. We find that firms with leading track records in employee well-being significantly reduce the probability of bankruptcy by operating with lower debt ratios. Moreover, we observe that firms with better employee track records have better credit ratings, even when we control for differences in firm leverage.

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“To succeed a corporation requires a co-investment of financial capital from the outside and human capital that is built up inside the business. You need the human capital to make the business work in the long run. [...] When you ask people to make an investment of human capital in your firm, you do not then do things – like raising the leverage ratio too high – that would needlessly put that investment at risk.”

Stewart Myers (Myers et al., 1998)

1. Introduction

Bankruptcy is costly for employees as it results in possible losses of income and firm-specific human capital. Jacobsen et al. (1993) exploit administrative data in the U.S. and find that high-tenure workers separating from distressed firms on average suffer long-term losses of 25 percent per year. They further find that the losses begin mounting before employees' actual separation, and that the losses are also large for employees finding new jobs in similar firms. Besides the loss of income, employees also lose non-pecuniary benefits of working for the firm.

In a theoretical paper, Berk et al. (2009) argue that the cost borne by employees is potentially the single most important indirect cost of bankruptcy. Companies with an interest in employee well-being are therefore likely to reduce the chance of bankruptcy, compared to firms with lower interests in employee well-being. Since bankruptcy occurs when firms cannot fulfill their debt payments, an obvious way of reducing the probability of financial distress is decreasing the firm's leverage.

This paper examines whether firms that score high on an employee well-being index have lower debt ratios than peers with lower scores. Our measure for employee well-being is based on KLD data and covers decisions and penalties involving employee safety, the degree to which employees are involved in the firm, the strength or weakness of the retirement benefits program, profit sharing programs, workforce reduction policies, and a firm's relations with unions.

We find that a higher score for employee well-being, measured on an aggregate level, is associated with a lower debt-assets ratio. More specifically, each extra point on the employee well-being scale lowers the debt ratio by about 0.015, *ceteris paribus*. We also find that various disaggregate measures of employee well-being show a significant relation to leverage. We report that firms with high scores for employee involvement, health and safety policies, and workforce reduction policies have on average lower leverage than firms with low scores.

Because firms generally do not rebalance their capital structure frequently, the observed book leverage of firms does not necessarily represent their target leverage. Retained earnings, for example, could move the firm away from its target. We therefore also test the relation between firms' employee well-being scores and the decision to issue or repurchase debt or equity. Focusing on debt-equity decisions at the time of leverage changes allows us to examine the effects of employee well-being on the target leverage of firms, instead of possible deviations from it. We find that firms with high employee well-being scores are especially more likely to issue equity instead of debt when they require external financing. We also find that firms with good employee relations are more likely

to repurchase debt instead of equity when they have a financing surplus, but the economic and statistical significance of this relation is less strong than for issue decisions.

As a final test we examine the relation between employee well-being and credit ratings. Credit ratings assess the creditworthiness of the firm: a firm with a good credit rating is more likely to be able to repay its loans, and thus has a lower probability of bankruptcy. Although leverage is a strong predictor for a firm's credit rating, the rating also depends on other factors, like the riskiness of the investments of the firm. By examining credit ratings, we are able to assess whether the reduced leverage of firms with a high score for employee well-being is not mitigated by other factors that potentially increase the probability of financial distress.

We find that firms with high scores for employee well-being have better credit ratings. The median credit rating for firms with positive scores for employee well-being is BBB, while it is BB for firms with non-positive employee well-being scores. After controlling for a range of firm characteristics (including book leverage), we find that the relation between employee well-being and credit ratings is significant at the 1% level. Hence, we conclude that a firm's interest in employee well-being is associated with a higher creditworthiness of the firm.

This paper makes several contributions. We contribute to empirical studies that relate firms' leverage to a range of firm characteristics. Most related in this aspect are Titman and Wessels (1988) and Kale and Shahrur (2007), who respectively show that product uniqueness and relation-specific investments by suppliers and customers are negatively related to firms' debt ratios. Both of these studies are in line with Titman's (1984) argument that customers, workers, and suppliers of firms that produce unique or

specialized products suffer relatively high costs in the event that these firms liquidate. We also contribute to the literature on corporate social responsibility (CSR)¹ and leverage. Barnea and Rubin (2006) claim that managers and large blockholders may want to overinvest in CSR for their private benefit, since CSR improves their reputation as being good global citizens. They find that firms with higher leverage have lower social ratings, and argue that high leverage prevents overinvestment in CSR because of high interest payments and more active monitoring by creditors. Hong and Kacperczyk (2009) argue that there is a societal norm to not fund operations that promote vice, and that equity investors are more subject to societal norms than bondholders. In line with this argument, they find some evidence that companies from sin sectors have higher debt ratios. We mainly differ from these papers by focusing on a disaggregate level of CSR, as different aspects of CSR can have different effects on corporate decisions, and an overall measure is therefore not necessarily informative (see Derwall and Verwijmeren, 2007). One of the most direct and interesting relations on a disaggregate level – regarding employee well-being and leverage – has thus far been relatively neglected, and this paper tries to fill that gap.

The remainder of this paper is organized as follows. We describe our data in Section 2, and Section 3 presents the empirical results. The conclusion is presented in Section 4.

2. Data and summary statistics

The central variable in our study is the measure of employee well-being, which we derive from the KLD STATS database. KLD is an independent research provider that

¹ See Renneboog et al. (2008) for a critical review of the literature on corporate social responsibility.

specializes in analyzing firms' employment practices, community involvement, adherence to human rights standards, product quality, and environmental management. Studies using the KLD database include Waddock and Graves (1997), Johnson and Greening (1999), Hillman and Keim (2001), Galema et al. (2008), Hong and Kostovetsky (2008), and Statman and Glushkov (2009). KLD now screens approximately 3,000 U.S. companies on various CSR attributes and assigns a strength/weakness indicator to each firm annually.

The KLD dimension that is relevant to our study is termed "employee relations" and covers (i) decisions and penalties involving employee safety, (ii) the degree to which employees are involved in the firm, for example, in decision-making processes, (iii) the strength or weakness of the retirement benefits program, (iv) profit sharing programs, (v) work reduction policies, and (vi) a firm's relations with unions. KLD assigns a value to each of the investigated indicators. We follow common practice in aggregating the individual items by summing all identified strengths and subtracting all identified weaknesses in a given year.

We will employ two aggregate measures of employee relations. The first measure of employee well-being is the aggregate of all sub-categories. The second measure is the aggregate without the firm's relations with unions and work reduction policies. Our motivation to develop the second measure relates to Bronars en Deere (1991), Chen et al. (2009), and Matsa (2009), who find that unionization might have an effect on firms' leverage for reasons unrelated to firms' motivation to limit bankruptcy risk to achieve greater employee well-being.² The relation between work reductions and leverage is also

² Bronars and Deere (1991) and Matsa (2009) focus on loan bargaining, and argue that firms obtain higher leverage to reduce the employee's bargaining power: high levels of debt increases interest payments and

excluded in the second measure since this relation is subject to reversed causality: firms with high leverage are more likely to get in financial distress and could therefore be forced to reduce the workforce.

Our data on employee relations cover the period 2001-2005. We match these data with firm characteristics from Compustat. These variables are total assets, book leverage, market leverage, tangibility, profitability, market-to-book ratio, dividend-paying behavior, the volatility of the firm's operating income, asset growth, whether the firm reports R&D expenses, slack, and depreciation. We truncate all firm characteristics at the 1% level. We also calculate the total score of firms' corporate social responsibility index as reported in KLD (excluding employee relations). We obtain 7,494 observations for which we have all the required data. Table 1 provides summary statistics.

[please insert Table 1 here]

Panel A provides information on the aggregate and disaggregate features of employee relations. All means are relatively close to zero. We have six sub-categories. Employee involvement relates to, for example, worker participation in management decision making. Health and safety relates to the health and safety standards: this variable will be negative if these standards had resulted in recent fines or civil penalties. A negative value for retirement program corresponds to underfunded pension plans or inadequate

thus lowers free cash flows, which results in fewer cash flows being demanded by workers during (collective) loan bargaining. Chen et al. (2009) find that labor unions increase firms' costs of equity by decreasing their operating flexibility.

retirement benefits programs. Cash profit sharing relates to recent profit distributions to a majority of the workforce. As the names imply, workforce reductions relate to significant reductions in the workforce and union relations relate to the treatment of the firm's unionized workforce. See Appendix A for a detailed description of the sub-categories. For our sub-categories, we find the largest standard deviation for the category "retirement programs". Apparently, of our categories, firms differ relatively the most in the quality of their retirement program.

Column 1 in Panel B shows the means of the firm characteristics for all observations in our sample. Columns 2-4 segregate the sample into different employee well-being scores. Column 2 provides firm information for observations that have a neutral employee well-being score. Most observations fall in this category (4,293 of the 7,494 observations). Column 3 shows the firm characteristics of firms with positive employee well-being scores, while Column 4 shows the characteristics for firms with negative scores, i.e. firms that are weak regarding employee relations. Column 5 reports the statistical significance for the difference in firm characteristics between firms with positive and negative employee well-being scores.

We find that firms with positive employee well-being scores have lower leverage than firms with negative scores: the average total book leverage is 0.188 for leaders in employee well-being, and 0.219 for laggards. This difference is statistically significant at the 1% level. Firms with a neutral score for employee well-being have an average book leverage of 0.203. We will investigate the relation between employee well-being and leverage further in our multivariate analysis in Section 3.

3. Empirical results

In this section, we examine the relation between employee well-being, leverage, debt-equity decisions, and bankruptcy risks, while controlling for other firm characteristics. Section 3.1 examines the relation between the aggregate measures of employee well-being and leverage. Section 3.2 reports our findings for disaggregate measures of employee well-being. We focus on issue and repurchase decisions in Section 3.3. Finally, Section 3.4 examines the relation between employee well-being and credit ratings.

3.1. Employee well-being and leverage

We test the relation between employee well-being and leverage with pooled ordinary least squares regressions. The dependent variable is the firm's book leverage, and the explanatory variable of interest is the firm's employee well-being score. In a first regression model, we control for firm size (the logarithm of total assets), tangibility, profitability, and the market-to-book ratio. We include $\log(\text{assets})$ since larger firms generally have more diversified operations and are therefore expected to have higher debt ratios. Firms with more tangible assets can use these assets as collateral, which will on average also increase debt ratios. Profitability and the market-to-book ratio are generally found to have a negative effect on leverage (see, e.g., Rajan and Zingales, 1995). Model 1 of Table 2 shows the results. Throughout the paper, we employ panel robust standard errors (clustered at the firm level), in line with recommendations of Petersen (2009).

[please insert Table 2 here]

Model 1 shows that all explanatory variables in the book leverage estimation are significant. In line with our conjecture, we find that a higher score for employee well-being is associated with lower leverage (t -statistic of -4.86). Each extra point on the employee well-being index lowers the debt ratio by an absolute 1.9 percent, *ceteris paribus*.

Larger firms and firms with more tangible assets are on average more levered, which is in line with previous studies. On the other hand, the relation between leverage and a firm's profitability and market-to-book ratio is negative. These findings are in line with prior studies on firms' leverage (see, e.g., Rajan and Zingales, 1995, De Jong et al., 2008). The R-squared of the model is 0.172.

Our second regression specification is based on Frank and Goyal (2009), who show that the most reliable and consistent firm characteristics with an effect on leverage over the period 1950-2003 are firm size, tangibility, profitability, the market-to-book ratio, whether the firm pays dividends, and the industry the firm belongs to. It can be seen from Model 2 that we again find a significantly negative relation between employee well-being and firm leverage. Whether a firm pays dividends is negatively related with firm leverage, which is in line with findings of Fama and French (2002). Dividend-paying firms are usually less financially constrained than non-dividend-paying firms, and according to the pecking order theory, unconstrained firms are less dependent on debt.

In Model 3 we add additional control variables. The negative relation between employee well-being and leverage is still statistically significant at the 1% level; the

coefficient is -0.015. The findings on our control variables indicate that firms with higher asset growth on average have higher leverage, which is in line with predictions of the pecking order theory: all else equal, firms with more investments should accumulate more debt over time. Firms with R&D expenses have lower leverage, in line with these firms having more intangible assets and more unique products. According to the pecking order theory, firms with more slack require less external financing and therefore less debt. We indeed find a negative relation between slack and firm leverage. The debt ratio is not significantly affected by the earnings volatility of firms and the firm's reported depreciation. Note that the effect of the market-to-book ratio becomes insignificant in Model 3.

Model 4 shows that our results are relatively similar when we include an overall score for corporate social responsibility as an additional control variable. This score excludes employee well-being, but includes the KLD-criteria human rights, environmental policies, product quality, governance, diversity, and community involvement. We find that an overall high score for corporate social responsibility also lowers the average firm leverage, but the effect is economically smaller than the effect of employee well-being (coefficient of -0.004 against -0.015). Multicollinearity is not an issue, since the correlations between corporate social responsibility categories are relatively weak (see Derwall and Verwijmeren, 2007).

Table 3 provides additional robustness tests for the relation between employee well-being and leverage, and is thus a continuation of Table 2. In Model 5 we again estimate the specification of Model 4, but we now use market leverage as the dependent variable. The findings are relatively similar. Each extra point on the employee well-being index

lowers the market debt ratio by 0.014, *ceteris paribus*. The R-squared is higher in the market leverage regressions (0.401) than in the book leverage regression (0.278).

In Model 6 we again use book leverage as the dependent variable, but we now use our second measure for employee well-being. This measure excludes the scores for employee well-being related to unions and work reductions. Our basic findings are qualitatively unaltered: firms with a higher score for employee well-being have significantly lower leverage than their peers (coefficient of -0.013, *t*-statistic of -3.23).

As Barnea and Rubin (2006) argue that large blockholders increase CSR scores to show good citizenship, we control for the number of blockholders in Model 7.³ We employ the “Blockholder” dataset from Dlugosz et al. (2006), which is available through the Wharton Research Database Services (WRDS). Since this dataset ends in 2001, we use the number of blockholders (shareholders holding more than 5% of the firm’s stock) that the firm has in 2001. We are able to obtain blockholder data for 3,008 of our observations. It can be seen from Model 7 that the number of blockholders has a positive effect on a firm’s leverage, although this effect is only significant at the 10% level. Including the blockholder variable in our regression does not change our findings on the effect of employee well-being on leverage. Interestingly though, it does lead the overall

³ Blockholders can be related to leverage in line with predictions of Stulz (1988), who argues that high inside ownership should be associated with higher leverage as greater leverage allows managers to increase their voting control for a given level of equity investment. Empirical studies however have not found a strong positive relation between blockholders and leverage: Holderness and Sheehan (1998) find that firms with corporate majority shareholders have debt ratios that are indistinguishable from those associated with similar-size firms with diffuse ownership, and Mikkelsen and Partch (1989) find no relation between leverage and managerial stock ownership.

CSR measure (with the exclusion of employee relations) to become insignificantly related to leverage.

We also test whether the relation between firm leverage and the score for employee well-being remains negative in a two-stage model. The first stage of the model consists of a probit model in which we regress an above-zero employee well-being dummy variable on the variables number of employees (scaled by total sales), profitability, and slack. We choose the number of employees as this variable is expected to affect the employee well-being score, while a direct relation with a firm's leverage is less obvious. We also include a firm's profitability and slack (cash and short-term investments), as we expect that firms with high profits and cash reserves are able to spend more on CSR policies. After estimating the first stage model, we calculate the inverse Mills ratio, based on Heckman (1979). This ratio is added to the second-stage regression as an additional variable.

Model 8 of Table 3 shows the results. The inverse Mills ratio itself is not statistically significant. The effect of employee well-being on leverage is still highly significant in our two-stage model. In fact, the economic significance substantially increases: the coefficient for the employee well-being dummy is -0.138.⁴ This indicates that with our two-stage model, we find that firms with a positive score for employee well-being have a debt ratio that is on average 0.138 lower than firms with a non-positive employee well-being score.

⁴ We have tested the robustness of this coefficient in the two-stage model by changing the first stage model. We have run estimations that included industry dummies, firm size, the market-to-book ratio, and year dummies, and found that the coefficient is robust for these changes in the first stage model.

As a final robustness test, we control for industry fixed effects in Model 9, in which an industry is defined as the four digit SIC-code, in line with Lipson and Mortal (2009). It can be seen that the R^2 is substantially increased in this Model. Our finding on the relation between employee well-being and leverage is again robust: we find a coefficient of -0.016 and a t -statistic of -6.45.

3.2. Disaggregate measures of employee well-being

To examine whether the results in the previous section are not driven by a single sub-category of employee relations, we segregate our employee well-being score in six sub-categories. Appendix A provides the exact definitions of these categories, as provided by KLD. Table 4 provides the results of our leverage regression with disaggregate measures of employee well-being.

[please insert Table 4 here]

It can be seen that various disaggregate measures of employee well-being show a significant relation to leverage. Firms with higher scores for employee involvement, health and safety policies, and workforce reductions have on average significantly lower (book and market) leverage. The score for cash profit sharing is significantly related to book leverage, but not to market leverage. On the other hand, the quality of the retirement program decreases the average market leverage, but does not have a significant effect on book leverage. Only the relation with unions is not a significant determinant of firm

leverage in both of the regression estimations. We hence conclude that the negative relation between employee well-being and leverage is not driven by a single sub-category of employee well-being.

3.3. Issue and repurchase decisions

A firm's book leverage reflects the historical aggregate of decisions. Because firms generally do not rebalance their capital structure to an optimal level frequently⁵, the capital structure of a firm is affected by many extraneous factors. For example, firms that have performed well in the past tend to have low leverage, because retained earnings increase the level of equity. This could affect the results of our analysis on employee well-being and book leverage, as Table 1 for example shows that firms with high employee well-being scores have higher profitability.

In this Subsection we will therefore examine whether a firm's employee well-being score has an effect on issue decisions and repurchase decisions at the time of leverage changes. These tests can more effectively isolate the impact of a factor on the target leverage of firms (Mackie-Mason, 1990; Hovakimian et al., 2001; Lipson and Mortal, 2009). That is, by focusing on debt-equity decisions, we can more directly examine whether employee well-being relates to target leverage, instead of deviations from it. If employee well-being is a relevant factor, then the employee well-being score should have

⁵ See for example Baker and Wurgler (2002) and Welch (2004). Note that researchers are still arguing about how (in)frequent capital structure is rebalanced. See Mahajan and Tartaroglu (2008) for evidence on the speed of rebalancing in an international context.

a negative relation with the decision to issue debt instead of equity and a positive relation with the decision to repurchase debt instead of equity at the time of leverage changes.

We define a firm as issuing (repurchasing) a security when the net amount issued (repurchased) divided by the book value of assets at the beginning of the fiscal year exceeds 1%.⁶ We estimate a binary logit model. The dependent variable equals one for a debt issue (repurchase), and equals zero for an equity issue (repurchase). We base our control variables on Rajan and Zingales (1995), Hovakimian et al. (2001), and Lipson and Mortal (2009). We take the employee well-being variables and the control variables at the beginning of the fiscal year. Table 5 shows the results.

[please insert Table 5 here]

Regarding issue decisions, we find that firms with a high score for employee well-being are less likely to issue debt when they require external financing. This relation is statistically significant at the 1% level. Table 5 also reports marginal effects, which are based on a one standard deviation change in the explanatory variable holding all other explanatory variables at their sample means. It can be seen that the marginal effect for employee well-being is -0.057, which is the 8th highest distance from zero of the 14 variables in the regression specification.

⁶ Cases where firms issued (repurchased) both debt and equity in a fiscal year are omitted. This is in line with Hovakimian et al. (2001) and Lipson and Mortal (2009). See Hovakimian et al. (2004) for a discussion of dual issues and their relation to capital structure theories.

The findings for the control variables show that larger firms, firms with more tangible assets, and firms with higher book leverage before the debt-equity decision, are more likely to issue debt instead of equity. The volatility of earnings decreases the likelihood of a choice for debt. The deviation of a firm's leverage from the mean industry debt ratio also has a negative effect on the likelihood of a debt issue: firms that are overlevered compared to the industry average are more likely to issue equity, and hence adjust their leverage towards the levels of their industry peers.

When we focus on repurchase decisions, we find that firms with high employee well-being scores are more likely to repurchase debt than firms with low employee well-being scores, all else equal. These findings provide important robustness for our hypothesis that firms with high employee well-being have lower target leverage. The findings also indicate that the lower observed leverage for firms with high employee well-being scores is the result of both a higher likelihood of equity issues in case of financing needs and a higher likelihood of debt repurchases in case of financing surpluses. However, the statistical and economic significance of the effect of employee well-being is higher for issue decisions than for repurchase decisions, as for repurchase decisions the effect is only statistically significant at the 10% level, and the marginal effect is 0.028.

3.4. Employee well-being and credit ratings

Credit ratings represent the creditworthiness of firms. Firms with the best ratings (AAA) have the lowest default probabilities. Standard and Poor's (2006) report that the probability of default for AAA firms is 0.35% in the upcoming ten years. Firms with a

credit rating of BB have a much higher chance of default (17.87% in the upcoming ten years), and firms with the lowest ratings (CCC&D) have a probability of default of 55.65% in the upcoming ten years. A firm's leverage is strongly related to credit ratings (see, e.g., Molina, 2005): firms with more debt have a higher chance of default and thus, *ceteris paribus*, lower (i.e. worse) credit ratings.

In this Subsection, we will examine whether firms with higher scores for employee well-being have better credit ratings. Given our findings that firms with higher scores for employee well-being have lower leverage, it is very likely that they do have better credit ratings. This is however not a certainty: other characteristics of the firms could mitigate the effect of leverage. For example, a firm with low leverage but very risky investment behavior could still have lower credit ratings than a firm with high leverage and more conservative investments.

We obtain credit ratings from Compustat. Because not all firms are reported to have credit ratings, our sample is reduced to 3,210 observations. We classify credit ratings on a 7-point scale, as in Ashbaugh-Skaife et al. (2006). A value of seven represents the highest S&P credit rating (AAA), and a value of one the lowest (CCC&D). Table 6 presents the results of our univariate and multivariate analysis.

[please insert Table 6 here]

Panel A presents means and medians for the credit ratings in sub-groups based on the score for employee well-being. The typical firm with a positive score for employee well-being has a credit score of four, which refers to a BBB rating. The typical firm with a

non-positive score has a credit score of three, which refers to a rating of BB. The difference between a BBB and BB score is substantial: Standard and Poor's (2006) report that the probability of default for firms with a BBB rating is 5.73% in the upcoming ten years, while it is 17.87% for firms with a BB rating.

In our multivariate analysis, we estimate an ordered logit model. Panel B of Table 6 shows that credit ratings improve for firms with higher scores for employee well-being, even when we control for book leverage.⁷ The control variables indicate that especially size, profitability, market-to-book ratios, and dividend payments increase a firm's credit rating (which is in line with, e.g., Altman and Rijken, 2004). Firms' leverage and earnings volatility show the strongest significantly negative effects. We conclude that firms with better employee relations have better credit ratings, and thus a lower probability of bankruptcy.

We are also interested in the economic significance of the relation between employee well-being and credit ratings. For ease of interpretation of these marginal effects, we modify our ordered logit model to a binary logit model, in which the dependent variable equals one for firms with investment grade debt, and zero for firms with speculative grade debt. We find that the marginal effect of employee well-being on the investment grade debt dummy variable is 0.096, which is a stronger effect than the effects of tangibility and the overall CSR-score, but the effect is not as strong as for the other explanatory variables in the model. Overall, the estimation of the binary logit model provides qualitatively similar results as the estimation of the ordered logit model.

⁷ If we do not include book leverage as a control variable, the coefficient for employee well-being increases from 0.164 to 0.209 (the *t*-statistic then becomes 3.48).

4. Conclusion

This paper examines the relation between employee well-being and firms' leverage. We hypothesize that when companies have a strong interest in employee well-being, they will reduce the chance of bankruptcy. We find that firms with stronger employee relations portrait lower leverage than their peers, and have better credit ratings. Our evidence is therefore in line with the conjecture that firms take employee well-being into account when deciding on leverage.

Berk et al. (2009) argue in a theoretical paper that if the supply of capital is infinite, but the number of employees is finite, firms that do not choose a debt level that maximizes the employee's utility will not be able to hire an employee. We do not study the implications of their model. If their predictions hold in the real world, the utilities of employees are related to leverage both because it is in the firm's best interest, and because firms care about their employees in a corporate social responsibility framework. Further research is needed to examine these separate effects.

Appendix A: The employee relations category in the KLD-database

A strength (value of 1) can be associated with the following sub-categories:

Employee Involvement. The company strongly encourages worker involvement and/or ownership through stock options available to a majority of its employees; gain sharing, stock ownership, sharing of financial information, or participation in management decision making.

Health and Safety Strength. The company has strong health and safety programs.

Retirement Benefits Strength. The company has a notably strong retirement benefits program.

Cash Profit Sharing. The company has a cash profit-sharing program through which it has recently made distributions to a majority of its workforce.

Union Relations. The company has taken exceptional steps to treat its unionized workforce fairly.

Other Strength. The company has strong employee relations initiatives not covered by other KLD ratings.

A concern (value of -1) can be associated with the following sub-categories:

Health and Safety Concern. The company recently has either paid substantial fines or civil penalties for willful violations of employee health and safety standards, or has been otherwise involved in major health and safety controversies.

Retirement Benefits Concern. The company has either a substantially under funded defined benefit pension plan, or an inadequate retirement benefits program.

Workforce Reductions. The company has made significant reductions in its workforce in recent years.

Union Relations. The company has a history of notably poor union relations. KLD renamed this concern from Poor Union Relations.

Other Concern. The company is involved in an employee relations controversy that is not covered by other KLD ratings.

References

- Altman, E.I., Rijken, H.A., 2004. How rating agencies achieve rating stability. *Journal of Banking and Finance* 28, 2679-2714.
- Ashbaugh-Skaife, H., Collins, D., Lafond, R., 2006. Corporate governance and the cost of equity capital. Working paper, University of Wisconsin.
- Baker, M., Wurgler, J., 2002. Market timing and capital structure. *Journal of Finance* 42, 1-32.
- Barnea, A., Rubin, A., 2006. Corporate social responsibility as a conflict between shareholders. Working paper, Simon Fraser University
- Berk, J.B., Stanton, R., Zechner, J., 2009. Human capital, bankruptcy, and capital structure. *Journal of Finance*, forthcoming.
- Bronars, S.G., Deere, R.R., 1991. The threat of unionization, the use of debt and the preservation of shareholder wealth. *Quarterly Journal of Economics* 106, 231-254.
- Chen, H., Kacperczyk, M., Ortiz-Molina, H., 2009. Labor unions, operating flexibility, and the cost of equity. *Journal of Financial and Quantitative Analysis*, forthcoming.
- De Jong, A., Kabir R., Nguyen, T., 2008. Capital structure around the world: The roles of firm- and country-specific determinants. *Journal of Banking and Finance* 32, 1954-1969.
- Derwall, J., Verwijmeren, P., 2007. Corporate social responsibility and the implied cost of equity capital. Working paper, Maastricht University.
- Dlugosz, J., Fahlenbrach, R., Gompers, P.A., Metrick, A., 2006. Large blocks of stock: Prevalence, size, and measurement. *Journal of Corporate Finance* 12, 594-618.

- Fama, E.F., French, K.R., 2002. Testing trade-off and pecking order predictions about dividends and debt. *The Review of Financial Studies* 15, 1-33.
- Frank, M.Z., Goyal, V.K., 2009. Capital structure decisions: Which factors are reliably important? *Financial Management* 38, 1-37.
- Galema, R., Plantinga, A., Scholtens, B., 2008. The stocks at stake: Return and risk in socially responsible investment. *Journal of Banking and Finance* 32, 2646-2654.
- Heckman, J., 1979. Sample selection bias as a specification error. *Econometrica* 47, 153-161.
- Hillman, A.J., Keim, G.D., 2001. Shareholder value, stakeholder management, and social issues: What's the bottom line? *Strategic Management Journal* 22, 125-139.
- Holderness, C.G., Sheehan, D.P., 1988. The role of majority shareholders in publicly held corporations. *Journal of Financial Economics* 20, 317-346.
- Hong, H., Kacperczyk, M., 2009. The price of sin: The effects of social norms on markets. *Journal of Financial Economics* 93, 15-36.
- Hong, H., Kostovetsky, L., 2008. Red and blue investing: Values and finance. Working paper, Princeton University.
- Hovakimian, A., Hovakimian, G., Tehranian, H., 2004. Determinants of target capital structure: The case of dual debt and equity issues. *Journal of Financial Economics* 71, 517-540.
- Hovakimian, A., Opler, T., Titman, S., 2001. The debt-equity choice. *Journal of Financial and Quantitative Analysis* 36, 1-24.
- Jacobsen, L.S., LaLonde, R.J., Sullivan, D.G., 1993. Earnings losses of displaced workers. *American Economic Review* 83, 685-709.

- Johnson, R.A., Greening, D.W., 1999. The effects of corporate governance and institutional ownership types on corporate social performance. *Academy of Management Journal* 42, 564-576.
- Kale, J.R., Shahrur, H., 2007. Corporate capital structure and the characteristics of suppliers and customers. *Journal of Financial Economics* 83, 321-265.
- Lipson, M.L., Mortal, S., 2009. Liquidity and capital structure. *Journal of Financial Markets*, forthcoming.
- MacKie-Mason, J.K., 1990. Do taxes affect corporate financing decisions? *Journal of Finance* 45, 1471-1493.
- Mahajan, A., Tartaroglu, S., 2008. Equity market timing and capital structure: International evidence. *Journal of Banking and Finance* 32, 754-766.
- Matsa, D.A., 2009. Capital structure as a strategic variable: Evidence from collective bargaining. *Journal of Finance*, forthcoming.
- Mikkelson, W., Partch, M., 1989. Managers' voting rights and corporate control. *Journal of Financial Economics* 25, 263-290.
- Molina, C.A., 2005. Are firms underleveraged? An examination of the effect of leverage on default probabilities. *Journal of Finance* 60, 1427-1458.
- Myers, S.C., McConnell, J., Peterson, A., Soter, D., Stern, J., 1998. Vanderbilt University roundtable on the capital structure puzzle. *Journal of Applied Corporate Finance* 11, 8-24.
- Petersen, M.A., 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies* 22, 435-480.

- Rajan, R.R., Zingales, L., 1995. What do we know about capital structure? Some evidence from International data. *Journal of Finance* 50, 1421-1460 .
- Renneboog, L., Ter Horst, J., Zhang, C., 2008. Socially responsible investments: Institutional aspects, performance, and investor behavior. *Journal of Banking and Finance* 32, 1723-1742.
- Standard and Poor's, 2006. Annual 2005 Global Corporate Default Study and Ratings Transitions.
- Statman, M., Glushkov, D., 2009. The wages of social responsibility. *Financial Analysts Journal* 65, 33-46.
- Stulz, R., 1988. Managerial control of voting rights: Financing policies and the market for corporate control. *Journal of Financial Economics* 20, 54-68.
- Titman, S., 1984. The effect of capital structure on a firm's liquidation decision. *Journal of Financial Economics* 13, 1-19.
- Titman, S., Wessels, R., 1988. The determinants of capital structure choice. *Journal of Finance* 43, 1-19.
- Waddock, S.A., Graves, S.B., 1997. The corporate social performance-financial performance link. *Strategic Management Journal* 18, 303-319.
- Welsh, I., 2004. Capital structure and stock returns. *Journal of Political Economy* 112, 106-131.

Table 1: Descriptive statistics

This table reports sample characteristics. The sample period is 2001-2005. Panel A reports our measures of employee well-being, and is based on KLD data. See Appendix A for a description of the sub-categories. Panel B reports the means of other firm characteristics, which are obtained from Compustat. Total assets is Compustat Item 6, and reported in millions of dollars. Book leverage is (Item 9 + Item 34) / Item 6. Market leverage is (Item 9 + Item 34) / (Item 9 + Item 34 + Item 24 * Item 25). Tangibility is Item 8 / Item 6 and Profitability is Item 13 / Item 6. The market-to-book ratio is calculated as (Item 9 + Item 34 + Item 10 + Item 24 * Item 25) / Item 6. Dividend paying is a dummy variable equaling one if Item 21 exceeds zero, and is zero otherwise. Earnings volatility is the standard deviation of the firm's EBITDA (scaled by total assets) over the past five years. Asset growth is (Item 6 / lagged Item 6) minus one. R&D dummy is one if Item 46 exceeds 0, and zero otherwise. Slack is Item 1 divided by Item 6, and Depreciation is Item 14 / Item 6. CSR is the aggregate CSR-score assigned by KLD (excluding the score for employee well-being). We report t-statistics for the difference of means between firms with positive and negative employee well-being scores. *, **, *** indicate significance at the 10%, 5%, and 1% confidence level, respectively.

Panel A: Measures of employee relations

	Mean	Median	St. Dev.
Employee well-being (aggregate)	-0.197	0.000	0.817
Employee involvement	0.094	0.000	0.292
Health and safety	-0.013	0.000	0.210
Retirement program	-0.218	0.000	0.452
Cash profit sharing	0.063	0.000	0.243
Workforce reduction	-0.095	0.000	0.293
Union relation	-0.019	0.000	0.170

Panel B: Other firm characteristics

	Overall sample (N= 7,494) (1)	Neutral score (N= 4,293) (2)	Positive score (N= 893) (3)	Negative score (N= 2,308) (4)	Difference of means t-statistics (5)
Total assets	4,727	2,720	14,324	4,784	7.399***
Book leverage	0.207	0.203	0.188	0.219	-3.961***
Market leverage	0.167	0.160	0.155	0.181	-3.902***
Tangibility	0.247	0.240	0.269	0.248	2.317**
Profitability	0.113	0.114	0.144	0.093	8.180***
Market-to-book ratio	2.050	2.069	2.290	1.979	4.919***
Dividend paying	0.389	0.347	0.568	0.390	9.129***
Earnings volatility	0.020	0.019	0.018	0.022	-3.622***
Asset growth	0.182	0.198	0.133	0.171	-2.110**
R&D dummy	0.542	0.519	0.692	0.528	8.478***
Slack	0.209	0.206	0.207	0.215	-0.820
Depreciation	0.044	0.043	0.044	0.045	-0.686
CSR	0.089	-0.084	0.508	0.227	3.255***

Table 2: Employee well-being and leverage

This table presents the relation between employee well-being scores and firm leverage. We estimate a pooled ordinary least squares regression. Industries are based on the Fama-French 12 industry classification. T-statistics are based on panel-robust standard errors. *, **, *** indicate significance at the 10%, 5%, and 1% confidence level, respectively.

	Book leverage			
	(1)	(2)	(3)	(4)
Employee well-being	-0.019*** (-4.86)	-0.017*** (-4.57)	-0.015*** (-4.12)	-0.015*** (-4.13)
Log(assets)	0.037*** (14.65)	0.037*** (14.88)	0.032*** (12.68)	0.033*** (12.81)
Tangibility	0.205*** (11.12)	0.192*** (9.02)	0.158*** (7.30)	0.151*** (6.87)
Profitability	-0.161*** (-5.06)	-0.126*** (-4.06)	-0.223*** (-6.81)	-0.224*** (-6.78)
Market-to-book	-0.007*** (-2.66)	-0.007**	-0.001	-0.001
Dividend paying		-0.051*** (-6.88)	-0.052*** (-7.08)	-0.050*** (-6.87)
Earnings volatility			-0.229 (-1.45)	-0.239 (-1.51)
Asset growth			0.017*** (3.07)	0.017*** (3.02)
R&D dummy			-0.022** (-2.26)	-0.022** (-2.19)
Slack			-0.190*** (-8.69)	-0.188*** (-8.57)
Depreciation			-0.048 (-0.61)	-0.004 (-0.04)
CSR				-0.004*** (-2.76)
Industry dummies	No	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
R ²	0.172	0.243	0.277	0.278
N	7,494	7,494	7,494	7,494

Table 3: Employee well-being and leverage (additional tests)

This table presents the relation between employee well-being scores and firm leverage. We estimate a pooled ordinary least squares regression. For the adjusted employee well-being variable we exclude the scores for unions and workforce reductions from the overall employee well-being score. The employee well-being dummy equals one if employee well-being has a positive score, and is zero otherwise. Blockholders are the number of shareholders that hold more than 5% of the firm's stock. Model 8 estimates a Heckman two-stage model. The first stage of this model consists of a probit model in which we regress an above-zero employee well-being dummy variable on the variables number of employees (Item 29, scaled by total sales (Item 12)), profitability, and slack. We then calculate the inverse Mills ratio, based on Heckman (1979), and include this ratio to the second stage regression. Industry dummies in Models (5)-(8) are based on the Fama-French 12 industry classification. Model 9 is an industry fixed effects specification. In this model, industries are based on four digit SIC-codes. T-statistics are based on panel-robust standard errors. *, **, *** indicate significance at the 10%, 5%, and 1% confidence level, respectively.

	Market leverage	Book leverage			
	(5)	(6)	(7)	(8)	(9)
Employee well-being	-0.014*** (-4.20)		-0.017*** (-3.49)		-0.016*** (-6.45)
Employee well-being adjusted		-0.013*** (-3.23)			
Employee well-being dummy				-0.138*** (-7.70)	
Log(assets)	0.033*** (12.23)	0.033*** (12.85)	0.029*** (7.33)	0.036*** (22.12)	0.029*** (17.32)
Tangibility	0.149*** (7.14)	0.150*** (6.82)	0.068* (1.92)	0.141*** (11.43)	0.124*** (6.61)
Profitability	-0.255*** (-12.88)	-0.229*** (-6.94)	-0.311*** (-3.34)	-0.250*** (-14.57)	-0.188*** (-11.83)
Market-to-book	-0.022*** (-10.67)	-0.001 (-0.24)	0.005 (0.75)	0.002 (1.20)	-0.001 (-0.60)
Dividend paying	-0.048*** (-6.98)	-0.051*** (-6.98)	-0.044*** (-4.17)	-0.043*** (-9.16)	-0.047*** (-9.53)
Earnings volatility	-0.098 (-0.79)	-0.233 (-1.47)	0.510 (0.82)	-0.190* (-1.81)	-0.326*** (-3.38)
Asset growth	0.011*** (3.29)	0.016*** (2.95)	0.011 (0.78)	0.014*** (3.21)	0.014*** (3.41)
R&D dummy	-0.039*** (-4.85)	-0.021** (-2.16)	-0.021 (-1.37)	-0.016*** (-3.48)	-0.029*** (-4.09)
Slack	-0.157*** (-10.90)	-0.186*** (-8.48)	-0.227*** (-4.85)	-0.217*** (-16.60)	-0.164*** (-11.89)
Depreciation	-0.117 (-1.42)	0.008 (0.08)	-0.180 (-1.22)	-0.001 (-0.01)	0.068 (1.05)
CSR	-0.006*** (-4.06)	-0.004*** (-2.71)	0.001 (0.39)	-0.003** (-2.42)	-0.005*** (4.14)
Blockholders			0.007* (1.75)		
Inverse Mills ratio				0.053 (0.58)	
Industry dummies	Yes	Yes	Yes	Yes	No
Year dummies	Yes	Yes	Yes	Yes	Yes
Four digit SIC-code fixed effects	No	No	No	No	Yes
R ²	0.401	0.277	0.244		0.403
N	7,494	7,494	3,008	7,494	7,494

Table 4: Employee well-being and leverage (disaggregate level)

This table presents the relation between sub-categories of the employee well-being scores and firm leverage. We estimate a pooled ordinary least squares regression. Industries are based on the Fama-French 12 industry classification. T-statistics are based on panel-robust standard errors. *, **, *** indicate significance at the 10%, 5%, and 1% confidence level, respectively.

	Book leverage	Market leverage
Employee involvement	-0.030*** (-2.71)	-0.020** (-1.99)
Health and Safety	-0.019* (-1.83)	-0.031** (-2.52)
Retirement program	-0.001 (-0.13)	-0.012** (-2.43)
Cash profit sharing	-0.029** (-2.15)	0.005 (0.37)
Workforce reductions	-0.036*** (-3.25)	-0.033*** (-3.36)
Union relation	0.001 (0.02)	0.003 (0.16)
Log(assets)	0.034*** (12.67)	0.033*** (12.20)
Tangibility	0.153*** (6.95)	0.147*** (7.05)
Profitability	-0.220*** (-6.59)	-0.251*** (-12.78)
Market-to-book ratio	0.001 (0.08)	-0.022*** (-10.46)
Dividend paying	-0.049*** (-6.79)	-0.048*** (-6.99)
Earnings volatility	-0.223 (-1.42)	-0.108 (-0.88)
Asset growth	0.017*** (3.05)	0.012*** (3.55)
R&D dummy	-0.021** (-2.13)	-0.040*** (-4.96)
Slack	-0.189*** (-8.65)	-0.161*** (-11.39)
Depreciation	-0.015 (-0.16)	-0.126 (-1.48)
CSR	-0.004** (-2.44)	-0.006*** (-4.16)
Industry dummies	Yes	Yes
Year dummies	Yes	Yes
R ²	0.280	0.402
N	7,494	7,494

Table 5: Issue and repurchase decisions

We estimate a binary logit model. Firms are defined as issuing (repurchasing) a security when the net amount issued (repurchased) divided by the book value of assets at the beginning of the fiscal year exceeds 1%. Cases where firms issued (repurchased) both debt and equity in a fiscal year are omitted. The dependent variable equals one for a debt issue (repurchase), and equals zero for an equity issue (repurchase). Employee well-being and the control variables are taken at the beginning of the fiscal year. The control variables are based on Rajan and Zingales (1995), Hovakimian et al. (2001), and Lipson and Mortal (2009). The MTB dummy is one when the market-to-book ratio exceeds one, and is zero otherwise. Deviation from industry leverage is a firm's book leverage minus the average book leverage ratio in an industry based on the four digit SIC-code. The fraction of debt that is due in three years is computed as (Item 44 + Item 91 + Item 92) / (Item 9 + Item 34). The Loss dummy equals one if Item 13 is negative, and is zero otherwise. NOLC is the net operating loss carryforward (Item 52), divided by Item 6. The stock return is computed by dividing the stock price in a given year (Item 24) by the stock price two years before. Marginal effects are based on a one standard deviation change in the explanatory variable holding all other explanatory variables at their sample means. Dummy variables are set to zero. Their marginal effects are calculated by evaluating the fitted value assuming the dummy variable under consideration equals one. Industries are based on the Fama-French 12 industry classification. T-statistics appear in parentheses and are based on panel-robust standard errors. *, **, *** indicate significance at the 10%, 5%, and 1% confidence level, respectively.

	Issue decisions		Repurchase decisions	
	Coefficient	Marginal effect	Coefficient	Marginal effect
Employee well-being	-0.231*** (-2.64)	-0.057	0.113* (1.70)	0.028
Log(assets)	0.364*** (6.75)	0.090	-0.325*** (-6.77)	-0.080
Tangibility	1.089*** (2.88)	0.270	1.342*** (3.76)	0.331
Profitability	0.677 (0.87)	0.168	-9.516*** (-8.98)	-2.351
Market-to-book ratio	-0.061 (-0.98)	-0.015	-0.148** (-2.12)	-0.036
MTB dummy	-0.209 (-1.21)	-0.051	-0.770*** (-4.97)	-0.182
Earnings volatility	-7.775* (-1.77)	-1.927	15.769*** (2.64)	3.895
CSR	0.016 (0.42)	0.004	-0.027 (-0.91)	-0.007
Book leverage	7.013*** (5.02)	1.738	0.405 (0.29)	0.100
Deviation from industry leverage	-6.184*** (-4.51)	-1.533	4.029*** (2.98)	0.995
Debt due in three years	0.131 (0.72)	0.032	1.103*** (6.19)	0.273
Debt due in three years *loss dummy	0.056 (0.13)	0.014	-1.053 (-1.56)	-0.260
NOLC	-0.466 (-1.51)	-0.116	0.339 (0.75)	0.084
Stock return	-0.064 (-1.63)	-0.016	0.120*** (2.87)	0.030
Industry dummies	Yes		Yes	
Year dummies	Yes		Yes	
R ²	0.153		0.270	
N	1,771		2,595	

Table 6: Employee well-being and credit ratings

This table presents the relation between employee well-being scores and S&P long-term credit ratings. Panel A presents means and median credit ratings for firms with negative, neutral, and positive scores for employee well-being. Credit ratings are based on a 7-point scale as in Ashbaugh-Skaife et al. (2006). In Panel B, we show the results of the estimation of an ordered logit model. We also show the results of a binary model, in which one indicates an investment grade rating (i.e. a credit rating above 3 on the 7-point scale), and zero indicates speculative grade ratings. Working capital is Item 4 minus Item 5, scaled by Item 6. Marginal effects are based on a one standard deviation change in the explanatory variable holding all other explanatory variables at their sample means. Dummy variables are set to zero. Their marginal effects are calculated by evaluating the fitted value assuming the dummy variable under consideration equals one. Industries are based on the Fama-French 12 industry classification. T-statistics are based on panel-robust standard errors. *, **, *** indicate significance at the 10%, 5%, and 1% confidence level, respectively.

Panel A			
	Negative employee well-being score	Neutral employee well-being score	Positive employee well-being score
Mean credit rating	3.499	3.457	4.259
Median credit rating	3.000	3.000	4.000

Panel B			
	Credit rating (Ordered)	Investment grade (Binary)	
		Coefficient	Marginal effect
Employee well-being	0.164*** (2.67)	0.386*** (3.97)	0.096
Log(sales)	0.866*** (13.52)	0.995*** (10.57)	0.248
Tangibility	-0.200 (-0.53)	0.088 (0.16)	0.022
Profitability	4.531*** (4.30)	4.049*** (2.68)	1.011
Market-to-book	0.536*** (5.35)	0.485*** (4.21)	0.121
Dividend paying	1.673*** (11.90)	1.569*** (8.63)	0.373
Book leverage	-4.839*** (-11.31)	-5.828*** (-9.41)	-1.455
Earnings volatility	-14.834*** (-14.05)	-12.285*** (-8.76)	-3.067
CSR	0.047* (1.83)	-0.018 (-0.49)	-0.004
Working capital	-0.948* (-1.90)	-1.835** (-2.54)	-0.458
Industry dummies	Yes	Yes	
Year dummies	Yes	Yes	
Pseudo R ²	0.381	0.492	
N	3,210	3,210	