

## **A greener company makes for happier employees more so than does a more valuable one: a regression analysis of employee satisfaction, perceived environmental performance and firm financial value**

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**Abstract:** This paper tests two hypotheses. The first hypothesis is that employee satisfaction is positively impacted when a company is perceived as performing well environmentally. The second hypothesis is that employee satisfaction is positively impacted by firm financial performance. To test these hypotheses, the relationships between perceived environmental performance, financial performance and employee satisfaction were tested using regression analysis. The results indicate a significant positive relationship between employee satisfaction and level of perceived environmental performance. This study does not find a significant relationship between employee satisfaction and firm financial value.

The practical implication for managers is that investments in environmental performance and related communications are important for reasons beyond those that are more commonly discussed, such as external stakeholder relations. This study suggests that environmental performance and related communications should be an integral part of human resources management strategies to recruit, motivate and retain the best talent.

**Keywords:** employee satisfaction; environmental performance; firm financial performance; Tobin's  $q$ ; CSR reporting; corporate social responsibility; sustainability.

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## **1 Introduction**

How do employees' perceptions of a company's environmental and financial performance impact their level of job satisfaction? To date, scant research exists on the topic, and the direction and significance of the relationship between the variables remains unclear. Common sense may lead one to believe that employees who place value on environmental performance may be happier working for companies whose perceived performance in this area is congruent with their beliefs. Likewise, employees' satisfaction may be related to a firm's financial value: employees of firms with solid financial performance may be more satisfied with their jobs than are employees of firms with mediocre financial performance. The purpose of this study is to simultaneously investigate the impact of both perceived environmental performance and firm financial value on the level of employee satisfaction.

## **2 Literature review**

### *2.1 Perceived environmental performance*

There are many ways to go about determining environmental performance. One way to define an entity's environmental performance is environmental efficiency; for example, taking a measure of an entity's environmental impact and dividing that measure by a denominator that reflects either units of economic activity or population or financial performance (Sulkowski and White, 2010).

No matter how it is defined, actual environmental performance could differ from perceived environmental performance. For purposes of this paper, the authors define perceived environmental performance as the collective reputation of a company among stakeholders, including, but not limited to, customers, employees and members of society in general. This definition closely matches that of Vanno, a company reputation ranking service. Vanno gauges relative company reputations using a Bayesian algorithm that relies upon the collective commentary, numerical scoring and voting of thousands of stakeholders on several specific topics (Vanno, 2008). To estimate relative reputations for environmental performance, Vanno relies on stakeholder input regarding various aspects of companies' environmental performance, including efforts related to pollution reduction and recycling, clean and renewable energy usage, sustainability, and conservation and

preservation. A further elaboration of Vanno's methods of determining perceived environmental performance is in the data sources section below.

## 2.2 Possible links between employee satisfaction, ethics and corporate responsibility reporting

A widely-cited definition of job satisfaction is "the pleasurable emotional state resulting from the appraisal of one's job as achieving or facilitating the achievement of one's job values" (Locke, 1969). Valentine and Fleischman (2008) define employee satisfaction as "improved job attitudes, increased productivity, and reduced turnover".

A connection has been postulated and tested between the ethical environment of companies and their employees' satisfaction (Schwepker, 2001). Schwepker mentions environmental performance as one aspect of a company's ethical atmosphere, which is shown to be "positively related to job satisfaction and organizational commitment"; questionnaire data and statistical analysis indicate that "creating such a climate [of high ethical standards] may have additional benefits such as greater job satisfaction, stronger organizational commitment, and subsequently lower turnover intentions". An additional study by Valentine and Fleischman (2008) that involved both survey data and regression analysis revealed that "ethics codes, training, and perceived CSR [corporation social responsibility] are positively associated with employee satisfaction".

Likewise, a connection between corporate responsibility (CR) reporting and employee satisfaction has been postulated as well. Increasingly, firms communicate facts and narratives related to their environmental performance to stakeholders through CR reports. Studies have supported the theory that CR reporting, which discusses, among other things, the environmental initiatives and performance of firms, has a great impact on employee satisfaction; and, when effectively executed, a company's CR report has the potential to positively increase the satisfaction of its employees (Valentine and Fleischman, 2008; Lee et al., 2008). This connection is discussed in further detail in the discussion section below.

Managers also perceive a link between the perceived responsibility of a company and employee satisfaction; KPMG's 2005 survey of senior executives at 1,600 companies in 16 different countries found that roughly 50% of respondents "listed employee motivation as their driver for CR behavior, which is an indication of the 'war for talent' which is increasingly important" (KMPG, 2005). In the next KPMG survey on corporate social responsibility in 2008 (in which executives from 2,200 companies in 22 countries participated), an even larger percentage of respondents – 52% – identified employee motivation as a driver (KPMG, 2008). Other characteristics of the internal working environment of a company were also commonly identified as drivers of CR behaviour; 55% indicated that innovation and learning were key drivers and 69% claimed that ethical considerations drive CR practices (KMPG, 2008). Therefore, practitioners' perceptions mirror the previously cited academic literature suggesting that CR behaviour is at least partly driven by its impact on employees, and that CSR and CR reporting may conversely impact employee satisfaction. Environmental performance is one subset of CSR activities, and one aspect of company performance that is described in CR reporting.

Based on the foregoing literature review, the following hypothesis is proposed:

- Hypothesis 1     The perception of better environmental performance leads to higher employee satisfaction.

### 2.3 Firm financial performance

#### 2.3.1 Tobin's q

The most common proxies for firm value include return on equity (ROE), return on assets (ROA), price/earning (P/E) ratio, earnings per share (EPS) and Tobin's q. Tobin's q, the ratio of the market value of a firm's shares to the replacement costs of its assets, is a financial performance indicator that links company stock and equity value (Chamberlin and Yueh, 2006). Lang and Stulz (1994) argue that Tobin's q serves as the best proxy for firm value when making comparisons between firms because accounting measures or the application of other ratios based on stock return requires risk-adjustment or normalisation. Tobin's q has been used in other studies where the relative value of firms was one of the variables being compared (Wei et al., 2010).

Consistent with the definition used by Lang and Stulz (1994), Chung and Pruitt (1994) offer a simplified Tobin's q model which yields similar results but depends on fewer financial variables. The simpler means of calculating Tobin's q is as follows:

$$q = (MVE + PS + DEBT) / TA$$

where MVE is the product of share price and the number of common stock shares outstanding, PS is the liquidating value of outstanding preferred stock, DEBT is the value of the firm's short-term liabilities net of its short-term assets plus the book value of the long term debt, and TA is the book value of the total assets.

A relationship between financial performance and employee satisfaction has been debated in both academic and practitioner-oriented journals. Many works postulate or present data that indicates that employee satisfaction and firm financial performance are linked, with some authorities such as Deming (1986) and Juran (1989) drawing this connection without qualification, others cautioning against taking too simplistic an approach to a complex set of interacting factors (Ledford, 1999) and still others providing evidence that the relationship is highly dependent on context (Silvestro, 2002). While Grant (1998) points to data that indicates a connection between worker attitudes and financial performance, Lockhart and Ellis (1998) question the relationship.

Based on the foregoing literature review, the following hypothesis is proposed:

Hypothesis 2     Better financial performance leads to higher levels of employee satisfaction.

## 3 Methodology

Linear regression is selected as the method of statistical analysis. A regression equation determines the association between metric or continuous dependent variables and metric or continuous independent variables. The R statistical package module for generalised linear models was used to perform the analysis (R Development Core Team, 2009). Employee satisfaction is the dependent variable and perceived environmental performance and firm financial performance are independent variables. Thus, the linear regression for this study is illustrated in the formula:

$$y = a + b_1x_1 + b_2x_2 + e$$

#### 4 Data sources

The sample population includes all companies in the Standard and Poor's 250 that engaged in CR reporting. This resulted in a sample of 113 companies. Tobin's q was calculated using publicly available financial data provided by companies in their annual financial statements.

The source of data for employee satisfaction and perceived environmental responsibility was Vanno (2008). Vanno uses a scoring algorithm based on Bayesian statistical methods to compute their rankings of companies. Bayes' theorem is a well-trusted mathematical tool used to calculate probabilities and is often applied in the medical field (Yudkowsky, 2006). Used correctly, the Bayesian method can statistically determine the probabilities of many factors. The difference between Bayes' theorem and other methods is that Bayes' theorem goes a step further by not only testing the variables related to a hypothesis, but also testing the likelihood of the hypothesis itself (Los Alamos Center for Bayesian Methods, 2002).

Vanno's measures of employee satisfaction and perceived environmental performance are based on individuals posting online opinions and news stories on several sub-topics, with various levels of opinion-makers then voting on whether they agree or disagree with posts. These pieces of user input together determine a score of a company on a sub-topic. The combined scores on these various sub-topics together are the basis for a score of employee satisfaction and environmental performance, as well as community involvement, customer satisfaction, patriotism and social responsibility.

The sub-topics that together determine environmental performance are: anti-pollution measures and recycling, clean and renewable energy usage, sustainability, and conservation and preservation. The sub-topics that determine employee satisfaction include compensation, co-workers, diversity, job satisfaction and management. Basing firms' scores on thousands of items of user input and multiple sub-topics increases the probability that Vanno's algorithm generates an accurate reflection of company reputation on any given measure.

#### 5 Results

The results of our study confirm our first hypothesis by revealing that there is a significant positive relationship between perceived environmental performance and employee satisfaction. With a T-value of 6.426, one can say with 99.9% confidence that the relationship exists as hypothesised. Conversely, the statistical testing does not find a significant relationship between firm financial performance and employee satisfaction.

**Table 1** Coefficients

	<i>Estimate</i>	<i>Std. error</i>	<i>t value</i>	<i>Pr(&gt; t )</i>
(Intercept)	15.876185	4.071903	3.899	0.000167***
Perceived environmental performance	0.347574	0.054090	6.426	3.46e-09***
Tobin's q	-0.002662	0.202982	-0.013	0.989558

Notes: Significant codes: '\*\*\*'0, '\*\*'0.001, '\*'0.01, '.'0.05, '0.1 and 1

**Table 2** Descriptive statistics

Residual standard error:	18.76 on 110 degrees of freedom
Multiple R-squared:	0.2754
Adjusted R-squared:	0.2622
F-statistic:	20.9 on 2 and 100 DF
P-value:	2.021e-08

## 6 Discussion

The results indicate that better perceived environmental performance positively impacts the satisfaction of the firm's employees, while firm value in this context provides no significant impact. Previous literature provides clues as to possible explanations for the observed results.

Bernhardt et al. (2000) provide both evidence and a review of theories that corroborates and helps to understand the apparent lack of connection between firm value and employee satisfaction. Some authors have posited that "frequently, worker satisfaction data are reflected in unit profitability" [Schneider, (1991), p.154], and others have found evidence for this relationship (Paradise-Tornow, 1991), which seems logical given a presumption that satisfied workers are more motivated and therefore more productive than dissatisfied employees (Bernhardt et al., 2000). However, Tornow and Wiley (1991) found a consistent negative relationship in cross-sectional studies of measurements of employee satisfaction – including pay and benefits – and gross profit. Wiley (1991) concluded that a relationship between overall satisfaction of employees and financial performance was "virtually non-existent". Bernhardt et al. (2000) build on this previous work with evidence from their longitudinal study demonstrating a lack of connection between employee satisfaction and financial health of business units. Put another way, while sometimes happier employees may be more productive, there could be an inverse relationship when a company displeases employees with cuts in benefits as it seeks to maximise profits.

Stakeholder engagement theory and the phenomenon of CR reporting helps to understand the power of perceived environmental performance in producing happier employees. The authors suggest that CR reporting may play a crucial mediating influence in shaping employee perceptions, which would help to understand the dramatic link between perceived environmental performance and job satisfaction. Kolk (2008) notes that, "while originally focused primarily on the environment, the scope [of CR reporting] has broadened to frequently also include ethical/social issues, usually employee and community matters". Especially in light of this observation, it is conceivable that companies that report more on environmental performance also expend greater effort reporting on their efforts to improve employee satisfaction, and that this explains the connection between perceived environmental performance and worker satisfaction. The precise means by which perceived and actual environmental performance impacts employee satisfaction is beyond the scope of the present study but is a promising area for future research.

Stakeholder engagement is commonly defined as "the process of seeking stakeholder views on their relationship with an organisation in a way that may realistically be

expected to elicit them” (Gao and Zhang, 2006; ISEA, 1999). Engaging employees helps to create a mutual understanding between businesses and the people that work for them, further increasing employee satisfaction; engagement is often carried out through certain methods of communication, and CR reporting is one commonly used tool (Gao and Zhang, 2006). It is therefore not surprising that ethics codes and CR reporting impact levels of employee satisfaction (Valentine and Fleischman, 2008). Sumner (2005) notes that “company’s corporate responsibility activities are playing a major part in how people view their employer” and how satisfied they are with their employer overall. Recent regression tests confirm that employee satisfaction is impacted by CR reporting (Lee et al., 2008).

While CR reporting can clearly be used as a tool for bona fide communication of environmental performance data to employees, it can obviously be used as a means to deliberately manipulate perceptions as a means for attaining competitive advantage and better productivity. The connection between CR reporting and productivity has been explored by several authors. CR reporting has been linked to employee loyalty, morale, and productivity (McWilliams and Siegel, 2001). Turban and Greening (1997) demonstrated that companies with a positive external reputation were more likely to attract higher-potential employees, further providing competitive advantage. According to Moskowitz (1972) and Parket and Eibert (1975), firms that satisfy employee demand for CR may experience increased loyalty, morale, and productivity. In addition, it has been suggested that employee perceptions of CR will positively impact an employees perception of organisational attractiveness, job satisfaction, organisational commitment, citizenship behaviour and performance (Rupp et al., 2006).

This last set of observations – that CR reporting can be used as a tool for improving productivity and company performance – begs the question of whether, by creating happier employees, perceived environmental performance will eventually correlate with company value. This study shows that a more valuable company does not result in more satisfied employees, but a greener company leads to happier employees, which, in turn, potentially may benefit the company.

## **7 Limitations and conclusions**

It is important that the limitations within our study are acknowledged. It is possible that data reflecting a longer period of time may produce different outcomes. Also, the same regression test using alternative measures of firm value and/or financial and/or perceived environmental performance and/or employee satisfaction may result in different outcomes. A study using data that reflects actual environmental performance rather than perceived environmental performance could lead to different outcomes. And for simplicity, the interaction effect between perceived environmental performance and firm financial value is not addressed.

The results of this study suggest a strong relationship whereby better environmental performance results in more satisfied employees. Put another way, having a reputation for being a relatively more environmentally-friendly company can result in having happier employees. The study found no evidence of a significant relationship between employee satisfaction and firm financial value. Thus, within this sample, being a more highly valued firm does not significantly impact the satisfaction of employees.

The practical implication for managers is that investments in environmental performance and related communications have added significance to a company's ability to recruit, motivate and retain the best talent. Therefore, communications about environmental performance should be considered as part of comprehensive human resources management strategies.

This study suggests future directions for research in, for example, determining the precise means that actual environmental performance and perceived environmental performance impact employee satisfaction. CR reporting may be the medium that shapes employees' and potential employees' perceptions of company environmental performance. Thus, CR reporting and its drivers and impacts, and specifically its value in the realm of human resources management, may be one fruitful vein of future research.

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### References

- Bernhardt, K.L., Naveen, D. and Kennett, P.A. (2000) 'A longitudinal analysis of satisfaction and profitability', *Journal of Business Research*, Vol. 47, No. 2, pp.161–171.
- Chamberlin, G. and Yueh, L. (2006) *Macroeconomics*, Thomson Learning, London.
- Chung, K.H. and Pruitt, S.W. (1994) 'A simple approximation of Tobin's q', *Financial Management*, Vol. 23, No. 3, pp.70–74.
- Deming, W.E. (1986) *Out of the Crisis*, Massachusetts Institute of Technology, Cambridge.
- Gao, S.S. and Zhang, J.J. (2006) 'Stakeholder engagement, social auditing and corporate sustainability', *Business Process Management Journal*, Vol. 12, No. 6, pp.722–740.
- Grant, L. (1998) 'Happy workers, high returns', *Fortune*, Vol. 137, No. 1, p.81.
- Institute of Social and Ethical AccountAbility (ISEA) (1999) *AccountAbility 1000 (AA1000) Framework: Standard, Guidelines and Professional Qualification*, ISEA, London.
- Juran, J.M. (1989) *Juran on Leadership for Quality: An Executive Handbook*, The Free Press, New York, NY.
- Kolk, A. (2008) 'Sustainability, accountability and corporate governance: exploring multinationals' reporting practices', *Business Strategy and the Environment*, Vol. 17, No. 1, pp.1–15.
- KPMG (2005) *KPMG International Survey of Corporate Responsibility Reporting 2005*, KPMG Global Sustainability Services, Amsterdam.
- KPMG (2008) *KPMG International Survey of Corporate Responsibility Reporting 2008*, KPMG Global Sustainability Services, Amsterdam.
- Lang, L.H.P. and Stulz, R.M. (1994) 'Tobin's q, corporate diversification, and firm performance', *Journal of Political Economy*, Vol. 102, No. 6, pp.1248–1280.
- Ledford, G.E. Jr. (1999) 'Comment: happiness and productivity revisited', *Journal of Organizational Behavior*, Vol. 20, No. 1, pp.25–30.
- Lee, T-Z., Ho, M-H., Wu, C-H. and Kao, S-C. (2008) 'Relationships between employees' perception of corporate social responsibility, personality, job satisfaction, and organizational commitment marketing', *Proceedings of the International Conference on Business and Information (BAI)*, Kuala Lumpur, Malaysia, 6-8 July, pp.1–17.

- Locke, E.A. (1969) 'What is job satisfaction?', *Organizational Behavior and Human Performance*, Vol. 4, pp.309–336.
- Lockhart, D. and Ellis, J. (1998) 'Happy workers, high returns? It's more complex', *Marketing News*, Vol. 32, No. 11, p.9.
- Los Alamos Center for Bayesian Methods (2002) *What is Bayesian Inference?*, available at <http://drambuie.lanl.gov/~bayes/tutorial.htm>.
- McWilliams, A. and Siegel, D. (2001) 'Corporate social responsibility: a theory of the firm perspective', *The Academy of Management Review*, Vol. 26, No. 1, pp.117–127.
- Moskowitz, M.R. (1972) 'Choosing socially responsible stocks', *Business & Society Review*, Vol. 1, Spring, pp.71–75.
- Paradise-Tornow, C.A. (1991) 'Management effectiveness, service quality and organizational performance in banks', *Human Resource Planning*, Vol. 14, No. 2, pp.129–139.
- Parke, I.R. and Eibert, H. (1975) 'Social responsibility: the underlying factors', *Business Horizons*, Vol. 18, No. 4, pp.5–10.
- R Development Core Team (2009) *R: A Language and Environment for Statistical Computing*, Vienna, Austria.
- Rupp, D.E., Ganapathi, J., Aguilera, R.V. and Williams, C.A. (2006) 'Employee reactions to corporate social responsibility: an organizational justice framework', *Journal of Organizational Behavior*, Vol. 27, No. 4, pp.537–543.
- Schneider, B. (1991) 'Service quality and profits: can you have your cake and eat it too?', *Human Resource Planning*, Vol. 14, No. 2, pp.151–157.
- Schwepker, C.H. (2001) 'Ethical climate's relationship to job satisfaction, organizational commitment, and turnover intention in the salesforce', *Journal of Business Research*, Vol. 54, No. 1, pp.39–52.
- Silvestro, R. (2002) 'Dispelling the modern myth: employee satisfaction and loyalty drive service profitability', *International Journal of Operations & Production Management*, Vol. 22, No. 1, pp.30–49.
- Sulkowski, A.J. and White, D.S. (2010 forthcoming) 'Financial performance, pollution measures and the propensity to use corporate responsibility reporting: implications for business and legal scholarship', *Colorado Journal of Environmental Law and Policy*, Vol. 21, No. 3.
- Sumner, J. (2005) 'Employees – your most important stakeholders', *Corporate Responsibility Management*, Vol. 1, No. 5.
- Tornow, W.W. and Wiley, J.W. (1991) 'Service quality and management practices: a look at employee attitudes, customer satisfaction, and bottom-line consequences', *Human Resource Planning*, Vol. 14, No. 2, pp.105–115.
- Turban, D.B. and Greening, D.W. (1997) 'Corporate social performance and organizational attractiveness to prospective employees', *The Academy of Management Journal*, Vol. 40, No. 3, pp.658–672.
- Valentine, S. and Fleischman, G. (2008) 'Ethics programs, perceived corporate social responsibility and job satisfaction', *Journal of Business Ethics*, Vol. 77, No. 2, pp.159–172.
- Vanno (2008) *The Company Reputation Index*, available at <http://www.vanno.com/>.
- Wei, L., Wang, W., Sulkowski, A. and Wu, J. (2010 forthcoming) 'The relationships between environmental management, firm value and other firm attributes: evidence from Chinese manufacturing industry', *International Journal of Environment and Sustainable Development*.
- Wiley, J.W. (1991) 'Customer satisfaction: a supportive work environment and its financial costs', *Human Resource Planning*, Vol. 14, No. 2, pp.117–127.
- Yudkowsky, E. (2006) *An Intuitive Explanation of Bayesian Reasoning*, available at <http://yudkowsky.net/rational/bayes>.