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Company Value and Employee Satisfaction: Theoretical Analysis and Empirical Findings

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Employee satisfaction and its potential impact on business and company success have been in the focus of organizational and managerial practise and research ever since. This paper outlines the theoretical framework of this particular cause-effect proposition, and further examines if there is empirical evidence to substantiate the underlying research hypothesis, saying that increasing degrees of employee satisfaction have a positive impact on the company value. The company value can be measured by the equity value of a firm. With the primary data analysis, the authors compared 11 companies which took part in the Great Place to Work (GPTW) Contest in 2007 and 2009 (only in 2009) regarding their equity values and GPTW scores. The figures of these companies were provided to the authors in an anonymous form. The authors had no influence on the number of companies the GPTW Institute provided to them. The GPTW Institute tried to find companies which attend both contests and also show their financial data in the "Elektronischen Bundesanzeiger". This paper aims to foster these results with some additional primary statistical analyses for hypothesis testing. For this investigation, the authors conducted various types of statistical procedures which seem to confirm the underlying proposition. With different types of correlation analysis, the relationship between equity value and GPTW score was elaborated. By regarding the absolute average Earnings Before Interest and Tax (EBIT) and equity value of the eleven out of the 100 best companies, some differences can be pointed out by setting them in comparison to 30 randomly selected companies from Germany.

Keywords: employee satisfaction, company value, equity value, regression analysis, cause-effect relations

Introduction

Numerous studies and authors support the proposition that there is a cause-effect relation between employee satisfaction (among other influencing variables like customer satisfaction, leadership, technology etc.) and the financial results of companies (Heskett, Jones, Loveman, Sasser, & Schlesinger, 1994; Hurley & Estelami, 2007). The main hypothesis of the underlying research paper is that "Employee Satisfaction has an Impact on the Level of Company Value". Based on a theoretical investigation, a secondary data analysis from the United States of America (USA), and a primary data analysis from Germany, the authors intend to demonstrate that there is a

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dependency between employee satisfaction and company value (Brenninger, 2011b; 2012). The research resumes that employee satisfaction can be managerially handled by business management (Rosenstiel, 2003; Malik, 2006) and thus also the financial results can be influenced.

The referred secondary data analysis in this article is based on studies from the USA, especially from Smithey-Fulmer, Gerhardt, and Scott (2003), and Romero (2004) from University of Texas-Pan American. Those studies show that there is a cause-effect relation between employee satisfaction and company value.

In an additional primary data analysis, the authors compared a sample of German companies, which took part in the "Great Place Contests" in 2007 and 2009 regarding their equity values and Great Place to Work (GPTW) scores. The figures of those companies were provided to the authors in an anonymous form. The authors had no influence on the number of companies the GPTW Institute has made available. The GPTW Institute tried to select companies, which attended both contests and also showed their financial data in the "Elektronische Bundesanzeiger" (the "Elektronische Bundesanzeiger" is the official statistical source of the German Government). Generally, it can be stated that after comparing the results of the GPTW contests in 2007 and 2009 and after analyzing the financial data of the companies, the research shows evidence of an impact of employee satisfaction on company value.

With the additional primary statistical analysis, the results could be further corroborated and the basic hypothesis that the "degree of employee satisfaction has an impact on the level of company value" was substantiated.

Framework of Research

The basic research hypothesis reads as follows: "the degree of employee satisfaction has an impact on the level of company value".

The "theoretical framework of research" will deal with various elements of employee satisfaction and financial results of business firms.

There is a proposition that increasing customer satisfaction depends on high motivated employees and staff motivation is based on satisfaction with their working circumstances and conditions (Holtbrügge, 2007; Heidecker, 2003).

In the first part, the authors want to point out the most relevant factors which are "responsible" for employee or job satisfaction. In the first step, the influencing elements on employee satisfaction are analysed. In the first place, leadership styles, working circumstances, payment, training and education, management styles, and other relevant factors are highlighted. Other factors like industry branches, market conditions, employment rate, and other aspects which cannot be influenced by managers were not neglected but taken into consideration.

Figure 1 gives an overview of the fields of research regarding employee satisfaction. The results are based not only on literature research, but also on the authors' business experience for more than 20 years.

This first part of the research provides evidence that employee satisfaction can be influenced by management. Especially leadership style and working circumstances are relevant factors of business success and productivity. In the authors' opinion, the leadership style generally has a very high impact on job satisfaction. Comparing the different leadership styles, the most positive impact on employee satisfaction can be reached via a participative and motivating leadership style (Weisbord, 2005).

In the second step, the literature research is aiming to explore the relation between employee satisfaction, sales turnover, financial results, and company value. Most studies give evidence that there is a "positive correlation" between the level of employee satisfaction and the financial results. But there are also a few studies claiming that there is no such relationship (Keiningham, Aksoy, Daly, & Perrier, 2006).

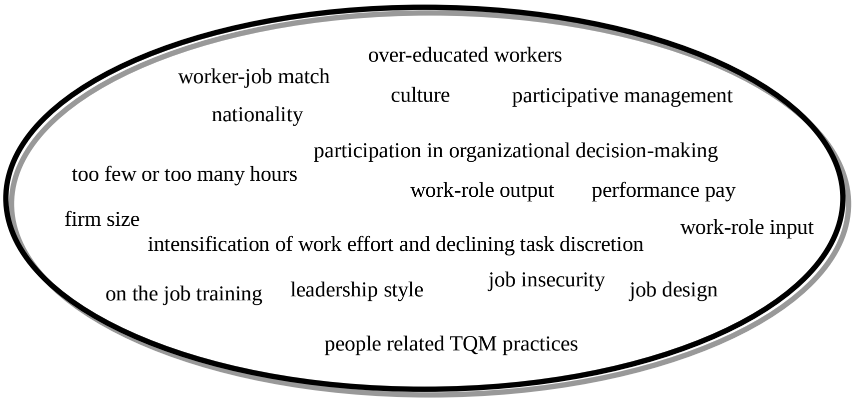

Figure 1. Dependencies and relevant factors of employee satisfaction and dissatisfaction. Source: Brenninger, 2011a.

Therefore it is necessary that the relation between employee satisfaction and company value has to be tested also with hard figures based on an overall accepted measurement for employee satisfaction. In the USA, a study which also uses the results of the GPTW Institute and respective financial data has already been done and will be elaborated in the secondary data analysis.

Figure 2 exemplarily shows the set of influence on employee satisfaction and their impact on the level of company value (Brenninger, 2011b).

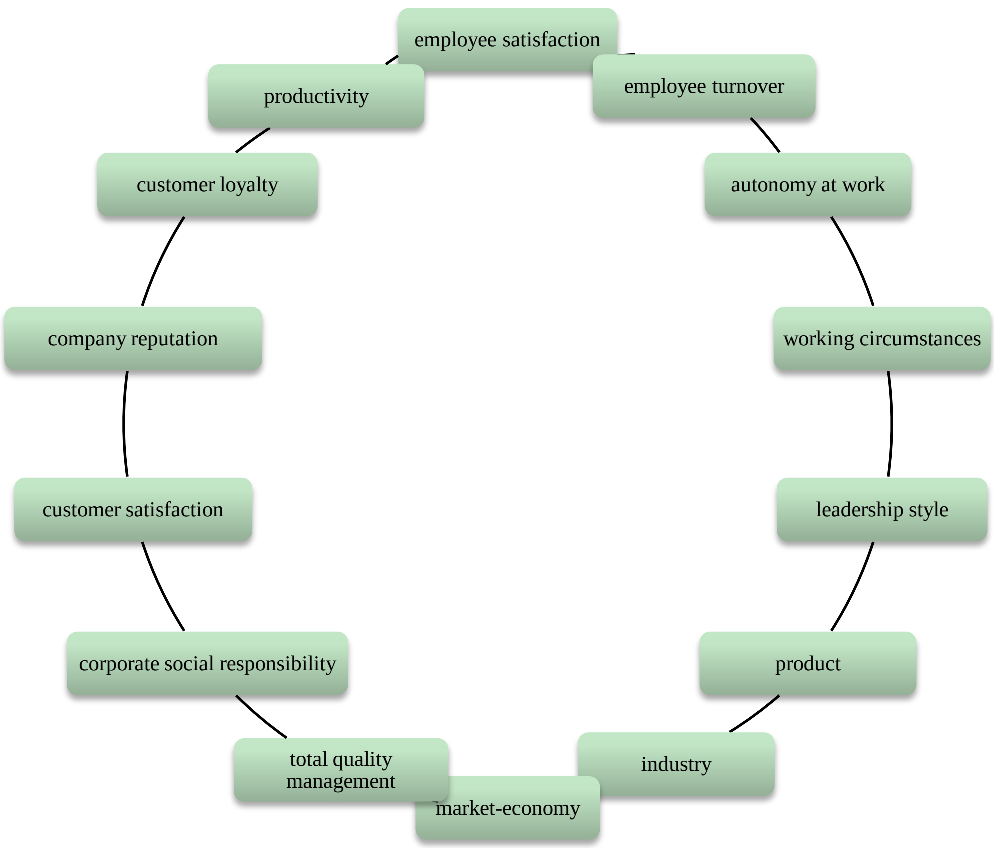

Figure 2. Issues influencing on financial results. Source: Brenninger, 2011b.

Theoretical Model and Set of Hypothesis

The second part "Theoretical Model and Set of Hypothesis" deals with the independent variable "employee satisfaction", the description of the GPTW Contest, the dimensions of a GPTW, the measurement of employee satisfaction, and approaches for computing the company value as the dependent variable.

The independent variable employee satisfaction will be measured by the results of the GPTW Contests in 2007 and 2009.

The GPTW® Institute, Inc. is a research and management consultancy firm based in the U.S. with international affiliate offices throughout the world. At the GPTW® Institute, they have been dealing with employees' affairs and the evaluation of employers since 1980, in order to understand what makes a workplace great.

The GPTW Institute measures the following five dimensions of employee satisfaction with a confidential questionnaire of about 60 questions:

- Credibility: Measures how employees see their managers in terms of confidentiality and reliability;
- Respect: Measures the degree how employees feel being respected from their managers;
- Fairness: Measures how employees feel being treated fair from their managers;
- Pride: Measures the solidarity from the employees to the team and the company;
- Camaraderie: Measures the quality of relationship between the employees.

Based on this dataset the GPTW Institute randomly selected a sample of companies for the authors' analyses which could also be found in the German "Elektronischer Bundesanzeiger".

The main goal of this research is to test whether there is an evident relation between the level of employee satisfaction and the respective company values. Therefore the authors calculated the company values for this sample of companies which are among the 100 best in the GPTW Contest in Germany in those years.

There are several approaches for computing the company value (see Figure 3). For most of these, a lot of financial data from balance sheets and profit and loss accounts are necessary. Most of these data, especially future based planning data, are not available in the "Elektronischen Bundesanzeiger". Therefore, this study will use the EBIT-Multiple Model (developed by HJK Management Consultancy).

Figure 3. Company value model. Source: Ballwieser, 1993; HJK Management Consultancy, 2012.

Figure 3 gives an overview of possible calculation methods for computing the equity value. It depends on the availability of data, to determine which model is appropriate and fits best. In practice and in real world, businesses EBIT multiples are used very often and even though no future planning material is available, the company or equity value can be estimated.

Empirical Investigation

The third part of this study, the "Empirical Investigation", is based on a secondary data analysis from the USA, and the financial results of the randomly selected companies, which attended the GPTW Contest in Germany in 2007 and 2009, and on additional primary statistical analysis with data from German companies.

Secondary Data Analysis From the USA

In this secondary data analysis from the USA, Ingrid Smithey-Fulmer from the Edi Broad Graduate School of Management Michigan State University, Barry Gerhard from the School of Business University of Wisconsin-Madison, and Kimberly S. Scott from the Wm. Wrigley Jr. Company conducted a study named: *Are the 100 best better?—An empirical investigation of the relationship between being a GPTW and firm performance*.

They suggest that positive employee relations effectively serve as an intangible and enduring asset, and may, therefore, be a source of sustained competitive advantage at the firm level. They surveyed a number of measures of firm-level performance and conceptualized how each measure is likely to be affected by highly positive firm-level employee relations. They then empirically investigated whether positive employee relations are related to firm performance, focusing on publicly traded firms, including the 100 "Best Companies" to work for in America. The relative performance of these Best Companies is examined via comparisons to both, companies in the broad market and a group of matched firms. Their analysis suggests that companies on the "100 Best" list enjoy not only highly positive workforce attitudes, but also performance advantages over the broad market, and in some cases, over matched firms (Smithey-Fulmer et al., 2003).

In their study Smithey-Fulmer et al. (2003) formulated three hypotheses:

Hypothesis 1: Companies included on the 100 Best list will exhibit stable levels of positive employee attitudes over time.

Hypothesis 2: Companies included on the 100 Best list will exhibit better performance relative to other companies because of their emphasis on employee relations.

Hypothesis 3: The superior performance of the 100 Best firms relative to other companies as captured by Return on Assets (ROA) will be more persistent over time than superior performance as measured by market-to-book value of equity or by annual stock returns.

The January 12, 1998 Fortune article *The 100 Best Companies to Work for in America* (Levering & Moskowitz, 1998) was the source of the Best Companies that are in the focus of this study, 238 companies were invited to submit information supporting inclusion in the 100 Best. This particular group was selected by the authors Levering and Moskowitz (1998), from their own "database of more than 1,000 companies", because they met certain minimum criteria (firms had to have been in existence for at least 10 years and employ a minimum of 500 people) and because they were considered as "most viable candidates for the list". Of those invited, 161 agreed to participate in.

The majority of employee survey questions used in selecting the 1998 100 Best list were created and administered by the GPTW Institute® of San Francisco, and this instrument is referred to as the GPTW® Trust Index©. Their Web site (Retrieved from www.greatplacetowork.com) describes a number of sample items from the survey along with the dimensions they intended to capture.

They used the 100 Best list as a starting point for their analysis of financial performance; they eliminated privately held companies, nonprofit organizations, public utilities, and financial institutions from their analysis. To be included in the study, they required that each of the 100 best companies had compustat data available in the matching year (1997, the year prior to publication) to facilitate the selection of a matching company. The final sample of Smithey-Fulmer et al. (2003) consisted of 50 companies from the January 1998 100 Best list.

In their study Smithey-Fulmer et al. (2003) elaborated the results and pointed out some issues for discussion and future directions.

They found that organization-level employee attitudes of the 100 Best firms were both highly positive and stable over time (supporting Hypothesis 1), bolstering the case for the characterizations of positive employee relations as strategic assets as described in the strategic management literature. Then they found that accounting ratios (ROA and market-to-book value of equity) of publicly traded companies included in the 100 Best list were generally better than those of a matched comparison group, supporting Hypothesis 2 and establishing a link between employee attitudes and organization-level financial performance, which had previously been unstudied. As for stock returns, they found that the 100 Best companies outperformed the broad market when considering cumulative (longer-term) returns, though not consistently for annual returns. They did not find that the 100 Best significantly outperformed their matched peers in most annual return comparisons other than 1998; they did outperform their peers in the years from 1995 to 1997 cumulative return period. Taken together, these results suggest that 100 Best companies are able to successfully manage relationship with multiple stakeholder groups (Jones, 1995), in this case, both employees and shareholders. At a minimum, these companies are able to create attractive workplaces without hurting the bottom line, and in many cases the 100 Best exhibit superior performance. Their hypothesis that different measure of performance would be affected differently over time is partially supported (Hypothesis 3) (Smithey-Fulmer et al., 2003).

The following managerial implications and implications for further research can be drawn from those findings:

- This study gives evidence that employee satisfaction leads to better company performance and financial results. Therefore managers have to give their employees a workplace environment which leads to high staff satisfaction;
- This research was conducted in the United States. Therefore it has to be verified, if those methods also fit for other countries and cultures.

Operationalization of "Employee Satisfaction" for the Analysis of the Results of the GPTW Contest 2007/2009 in Germany

Based on an employee survey and a culture audit, attending companies of this contest in Germany were ranked from one to 100. In this research, the results from eleven randomly selected companies, which attended the contests in 2007 and 2009 or only in 2009, were analyzed. Unfortunately, the sample was limited to only eleven companies for which the GPTW Institute provided the relevant data set.

After the analysis of one by one of these eleven companies, attending the GPTW Contest, the most significant findings can be pointed out:

- All these 11 companies have a very high employee satisfaction score;
- The six companies which took part twice in this contest (2007 and 2009), and reached a rank among the 100 Best, are outstanding regarding their employee satisfaction scores;

- The average score in 2009 is higher than the average score in 2007, meaning that these 11 outstanding companies could increase their average employee satisfaction score from 2007 to 2009.

Table 1 gives an overview regarding the employee satisfaction scores of the attending 11 companies with the average score.

Table 1

Employee Satisfaction Scores of Attending 11 Companies With Average Score

Company	2007	2009
1	135.48	130.68
2	133.07	152.80
3	-	129.27
4	165.92	159.38
5	130.65	150.48
6	152.35	132.08
7	112.11	152.80
8	-	134.74
9	-	138.81
10	-	122.17
11	-	126.74
Average score	138.26	139.09

Note. Source: GPTW.

Operationalization of "Equity Value" as the Dependent Variable

In the next step, the EBITs and equity values of the companies attending the GPTW Contest have to be computed.

The companies were selected from the GPTW Institute and provided in an anonymous design. All the figures and numbers of the companies are from of the "Elektronischer Bundesanzeiger". The authors received the data directly from the GPTW Institute in an unattributed form, because confidentiality GPTW eliminated the names of the companies.

The "Elektronischer Bundesanzeiger" is a major official data source, issued by the German Federal Government. It collects mandatory data delivered by all of the German companies which are subject to the German economic and commercial legislation. The data of the "Elektronischer Bundesanzeiger" represent an overall picture of the EBIT as well as the equity value of the population of German companies.

After computing EBIT and equity value for these companies attending the GPTW Contest, the following findings can be pointed out and serve as the base for additional research implications.

Table 2 shows the absolute figures in terms of EBIT and equity value of the companies attending the GPTW Contest.

All of the randomly selected companies show quite strong financial results. Only one company shows significant bank debts. Seven out of eight Companies could increase their EBIT during the regarded period. Six out of eight companies could increase their equity value, as well. Both, average EBIT (26.4%) and equity value (30.45%) grew during the regarded period.

Table 2

Computing Average EBIT and Average Equity Value of the Eight GPTW Companies

Company	EBIT in T€		Equity value in T€	
	2006	2008	2006	2008
1	1,436	2,140	11,091	15,507
2	-	-	-	-
3	-	-	-	-
4	1,024	1,091	7,395	7,080
5	943	1,091	6,173	6,438
6	2,422	2,178	18,615	17,036
7	14,801	15,611	79,512	92,896
8	7,926	14,242	33,079	71,204
9	3,374	3,944	22,848	25,262
10	1,866	2,415	24,199	29,103
11	-	-	-	-
Average	3,072	3,883	18,447	24,048

Note. Source: Elektronischer Bundesanzeiger.

The following empirical findings can be summarized again:

- The secondary data analysis based on the studies from the USA, especially from Smithey-Fulmer et al. (2003), show high evidence that there is a positive relation between employee satisfaction and company value;
- After the analysis of the sample of eleven companies attending the GPTW Contest, it can be stated that all these eleven companies have a very high employee satisfaction score;
- The six companies which took part twice in this contest and reached a rank among the 100 Best are outstanding regarding their employee satisfaction;
- The equity values of the selected companies show quite strong financial results;
- Summing up, it can be ascertained that our research shows high evidence of a remarkable relation between the level of employee satisfaction and the company value.

Additional Primary Statistical Analysis for Testing the Basic Hypotheses

In this part, an additional primary statistical analysis for testing the basic hypotheses was conducted as an exemplary investigation. This research was based on the employee satisfaction scores of the German companies which took place in the GPTW contest 2007 and 2009 and on the EBIT and equity value from 30 randomly selected companies from the "Elektronischer Bundesanzeiger". It is assumed that those 30 companies large represent the population (the entire number) of the officially listed German companies in terms of company value rate, average employee satisfaction, and average firm size in the area of small and medium sized companies, in accordance with a normal distribution.

Correlation Analysis for the Relationship Between Equity Value and Employee Satisfaction

Different types of correlation analyses were conducted between the delta of the GPTW scores and the delta of equity values. If a rising or declining equity value as the dependent variable is in line with rising or declining GPTW scores as the independent variable, representing employee satisfaction, the basic hypotheses might be substantiated.

A comparison of the results about the years 2007 and 2009 is depicted in Table 3.

Table 3

Equity Value and Δ "Great Place to Work Score"

Company	Δ Equity value	Δ Great value to work score
1	+ 4,416	-4.8
4	-315	-6.54
5	+ 265	+ 19.83
6	-1,579	-20.27
7	+ 13,384	+ 40.69

Note. Source: GPTW and Elektronischer Bundesanzeiger.

Only five out of the 11 companies participated in both years and also show their figures in the "Elektronischer Bundesanzeiger". Therefore, only for these companies, an exemplary correlation analysis could be performed.

The correlation analysis based on Pearson's correlation coefficient shows the following findings:

- There is an acceptable significance level of $p = 0.055$ representing $1 - p = 0.945$ expected probability;
- The analysis shows a strong positive correlation of $r = 0.792$;
- In our case, the coefficient of determination $r^2 = 0.792^2 = 0.627$ means that varying levels of company value are to an impact level of nearly 63% caused by the independent variable employee satisfaction, measured by the GPTW score.

Therefore, the following conclusion can be drawn: There is a positive relationship between the variations of company values in dependence of varying employee satisfaction scores.

The analysis based on Kendall's Tau and Spearman's Rho correlation coefficients show the following findings:

Both Kendall's Tau and Spearman's Rho show a very strong relationship between the equity value as the dependent variable and the GPTW score as the independent variable, representing employee satisfaction (0.8 Kendall's Tau and 0.9 Spearman's Rho).

Interestingly, both significance levels are very high ($p = 0.025$ and $p = 0.019$), which further confirms our basic hypotheses.

However, the authors have to concede that the available data only allowed for a very small sample, which may limit the findings.

Nevertheless, also the first primary analysis is in line with the conjecture that equity value maybe significanctly influenced by employee satisfaction.

Testing Statistics for Average EBIT and Average Equity Value Comparing GPTW-Companies and Randomly Selected Companies

In this chapter, the average EBIT and equity values of the 11 analysed companies which attended the GPTW Contest in 2007 or 2009 are computed. As mentioned before, the GPTW Institute tried to find some companies which attended the GPTW Contest in 2007 and 2009 and also show the relevant data in the "Elektronischer Bundesanzeiger". Only eight out of the 11 companies which attended the contest in 2007 and 2009 showed sufficient data for the analyses of EBIT and equity value. The data were given to the authors in an anonymous form because of data security.

From this data set, a comparison can be performed between the eight out of 100 Best companies and other randomly selected companies. By regarding the absolute average EBIT and equity value of the 11 out of 100 Best companies some differences can be pointed out, set in comparison with 30 randomly selected companies, and at the end, our hypotheses can be tested by a *t*-test and a Mann-Whitney Test.

To test if there is any remarkable difference regarding EBIT and company value between the 100 Best companies and the (randomly selected) normal Companies, an additional test was performed. Thirty companies which were not among the 100 Best or did not participate in the contest were selected randomly from the "Elektronischen Bundesanzeiger".

Based on a random procedure, the authors chose a sample of 30 companies out of the total population representing the statistical minimum sample size for statistical analysis (Rasch, Verdooren, & Growers, 1999).

The author's intention is the following:

If the average EBIT and equity value of the eight GPTW companies should be significantly higher than the average EBIT and equity value of the remaining German companies (represented by the randomly selected sample of 30 companies), the authors can postulate that this result may have been caused at least to a certain extent by higher employee satisfaction. This is the fact because the selected eleven GPTW companies are definitely among the best GPTW scores (representing employee satisfaction) within a sample of some hundred companies participating in the GPTW Contest. It can be assumed that generally only those companies decided to participate in the GPTW Contest which would presumably show a higher level of employee satisfaction anyway (Schulte-Deußen, 2012).

Comparing Average EBIT and Average Equity Value

Table 4 shows the EBIT's and equity values of the companies, which attended the GPTW Contest.

Table 4

Computing Average EBIT and Average Equity Value of the "Great Place to Work Companies"

Company	EBIT in T€		Equity value in T€	
	2006	2008	2006	2008
1	1,436	2,140	11,091	15,507
2	-	-	-	-
3	-	-	-	-
4	1,024	1,091	7,395	7,080
5	943	1,091	6,173	6,438
6	2,422	2,178	18,615	17,036
7	14,801	15,611	79,512	92,896
8	7,926	14,242	33,079	71,204
9	3,374	3,944	22,848	25,262
10	1,866	2,415	24,199	29,103
11	-	-	-	-
Average	3,072	3,883	18,447	24,048

Note. Source: GPTW and Elektronischer Bundesanzeiger.

The following findings can be stated:

- Seven of eight companies could increase their EBIT during the regarded period;
- Six out of eight companies could increase their equity value, as well;
- Both average EBIT (26.4%) and equity value (30.45%) grew during the regarded period.

Now the average EBIT and equity value of the 30 randomly selected normal companies can be computed.

Table 5 shows the EBITs and equity values of the 30 randomly selected companies representing the population of German companies.

Table 5

Average EBIT and Equity Value of 30 Randomly Selected Companies in Germany

Company	EBIT in T€		Equity value in T€	
	2006	2008	2006	2008
1	508	466	-16	-1,676
2	407	520	129	-1,398
3	303	126	1,968	661
4	858	338	4,423	15
5	195	61	-2,154	-4,073
6	6,046	3,310	44,628	23,322
7	-272	1,223	-3,618	5,587
8	-396	130	-2,346	-222
9	4,928	6,611	34,992	45,974
10	-15,495	-3,016	-107,686	-16,435
11	511	691	3,305	4,414
12	6,965	9,917	56,074	70,180
13	623	639	5,327	5,438
14	2,415	7,930	25,208	62,146
15	3,452	2,183	24,101	15,189
16	7,902	10,066	42,353	53,810
17	737	410	1,675	-2,170
18	4,138	3,895	25,013	28,292
19	3,803	3,694	20,289	8,784
20	885	1,145	-1,698	-1,017
21	3,678	6,340	27,180	43,299
22	614	450	2,729	2,433
23	2,090	1,068	18,130	12,182
24	624	639	5,334	5,438
25	1,382	1,220	8,260	5,501
26	823	1,058	1,103	5,370
27	4,434	1,851	41,510	27,391
28	791	1,306	3,704	5,901
29	293	347	-617	1,099
30	1,912	2,212	11,622	11,425
	1,505	2,228	9,697	13,895

Note. Source: GPTW and Elektronischer Bundesanzeiger.

The following findings can be stated:

Only slightly more than half (16) of the 30 randomly selected companies could increase their equity value during the regarded period.

There are some companies out of the randomly selected ones, which show negative equity values. Theoretically it would mean that the owner of the company has to give the buyer of the company some money to get rid of it. In practice or in the Mergers & Acquisition business, this would never happen. Therefore, from a realistic point of view, computing the average company value has to be corrected by neglecting negative equity values.

	Ø EBIT in T€			Ø Equity value in T€		
	2006		2008	2006		2008
GPTW Companies	3,072	26.4%	3,883	18,447	30.36%	24,048
30 randomly Selected	1,505	48%	2,228	13,635	8.5%	14,795
Δ	1,567		1,655	4,812		9,253

Figure 4. Comparison of GPTW and 30 randomly selected companies with correction of negative equity values.

Comparing the results of the GPTW companies with the results of the 30 randomly selected ones (see Figure 4), it is evident that there is a high difference, not only in the absolute amount of average EBIT and average equity value, but also in the percentage of increase of the equity value.

Testing Statistics for Comparing Different Average EBIT and Equity Values With the Mann-Whitney-Test

From a generated data set which was processed from these absolute figures and arranged with rank numbers, a statistical Mann-Whitney-Test was run with SPSS.

The analysis based on the Mann-Whitney-Test of the EBIT 2006 comparing the eight GPTW companies with the 30 randomly selected companies shows the following results.

For the 2006 results, there is obviously no statistical difference between the eight GPTW companies and the 30 randomly selected companies, shown by the value for the asymptotic significance and the exact significance of 0.616 and 0.686.

From these results alone, it could not be stated that GPTW companies are better than the randomly selected 30 companies representing the population.

The same procedure for 2008 shows an improved result in terms of asymptotic and exact significance values of 0.122 respective 0.221.

But it still means that there cannot be stated any superiority in EBIT 2008 of the eight GPTW companies against the randomly 30 selected companies representing the population.

The analysis based on the Mann-Whitney-Test, equity value in 2006 shows the following results:

The Mann-Whitney-Test procedure for the equity value in 2006 also shows asymptotic significance and exact significance of 0.200 and 0.219. That means the research cannot state a statistical difference, even though the data set indicates an equity value advantage of the eight GPTW companies

The Mann-Whitney Equity Value Test for 2008 becomes statistically much more interesting, because the asymptotic significance and exact significance values improve drastically to 0.066 and 0.074 respectively. This means that on a p-level of about 0.07, it can be stated that there is an obvious superiority in the 2008 equity value of the eight GPTW companies against the representative remaining 30 randomly selected companies.

Testing Statistics for Comparing Different Average EBIT and Equity Values With the *T*-test

In the first place the Mann-Whitney-Test was conducted as a non-parametric test which does not require specific formats of statistical and empirical distributions. Even though the authors cannot be sure that our sample data for the eight GPTW companies and the sample of the 30 randomly selected companies are subject to a normal distribution, there are some strong hints that this maybe the case:

Firstly, GPTW companies' scores generally follow a normal distribution (Retrieved from www.greatplacetowork.com) and secondly there is no indication that scores and values of the population of German companies do not follow a normal distribution (Retrieved from www.elektronischerbundesanzeiger.de).

Therefore the authors also conducted a t-test to find out whether the EBIT and equity value of the GPTW companies of 2006 and 2008 are higher than the EBIT and equity value of the representative sample of the 30 randomly selected companies.

Based on these assumptions the t-test shows the following findings:

- The EBIT of 2006 of the GPTW companies and the other 30 randomly selected companies, which represent the population of German companies, does not show a statistical difference, meaning the 0-hypotheses of equal EBIT's cannot be rejected in this case.

The analysis based on the *t*-Test EBIT 2008 shows the following findings:

- Interestingly, for EBIT 2008, there is a significant difference between the eight GPTW companies and the 30 randomly selected companies on a high significance level of $p = 0.027$.
- Therefore it can be stated that the average EBIT 2008 of the eight GPTW companies is significantly higher than the EBIT 2008 of the representative group of the 30 randomly selected companies.

The next step is to conduct the statistical calculation for the equity value of these two groups of companies.

The analysis based on the *t*-Test equity value 2006 shows the following findings:

- The equity value 2006 of the GPTW companies and the other 30 randomly selected companies, which represent the population of German companies, does not show a statistical difference, meaning the 0-hypotheses of equal equity values cannot be rejected.

Finally, the analysis based on the *t*-Test equity value 2008 shows the following findings:

- Our test procedure indicates, based on the *t*-value, that the 0-hypotheses (equal equity values) should be rejected and that there is an obvious difference between the equity value of the eight GPTW companies and the 30 randomly selected companies (representing the population of German companies). However, the level of significance is relatively non-sufficient.

Comparing Average Great Place to Work Scores

Finally, the average score of our 11 attending companies will be compared with the average score of the 100 Best and with the average score of all attending companies, to see if there are also some remarkable findings.

For the year 2007, the average total score of all attending companies was 115.9 and for the 100 Best 132.7.

For the year 2009 the average total score of all attending companies was 107.2 and for the 100 Best 128.9.

The diversification of these two years is caused by two effects. First, the GPTW Institute has differently calibrated their validation for the year 2009, which leads to stricter regulations and therefore to lower scores. Second, there is a tendency that more companies take place in the contest knowing that they don't really have a chance to win the contest (Schulte-Deußen, 2012).

Table 6 shows that the 11 randomly selected companies are obviously above the average 100 Best scores. Interestingly, the average score of all attending companies and the 100 Best companies declined during the regarded period, while the average GPTW score of the 11 randomly selected companies increased during the regarded period. That may lead to the assumption that these 11 companies, which are among the top 50 out of the 100 Best, could increase their employee satisfaction level more than the rest and that they belong to the top rated German companies in terms of employee satisfaction.

Table 6

Comparison of Average Total Scores and Randomly Selected Companies

Average score	2007	2009
11 randomly selected companies	138.26	139.09
Best 100	132.7	128.9
All attending companies	115.9	107.2
Δ Best 100	5.56	10.19
Δ 11 selected to all	22.36	31.89

Intermediate Conclusions Based on the Testing Statistics

Our primary statistical analyses have produced various complementary findings which can be pointed out as follows:

- There is a strong impact of employee satisfaction on the equity value in a positive way (as shown in the correlation analysis). Our sample of the 11 GPTW companies indicates that their overall employee satisfaction is higher than the average employee satisfaction within the population of German companies;
- Even though the conducted Mann-Whitney-Test and *t*-test procedures for EBIT and equity value deliver mixed results, there are some indications that the average EBIT and equity value of the eight (only eight out of the eleven showed sufficient financial data in the "Elektronischen Bundesanzeiger") regarded GPTW companies may be significantly higher than the EBIT and equity value of the other 30 randomly selected companies (representing the population of German Companies);
- Since it can be presumed that the level of employee satisfaction within the eleven GPTW companies is generally higher than the level of employee satisfaction of the representative other 30 randomly selected companies the authors may basically postulate: "Increasing employee satisfaction tends to have a positive impact on the EBIT and on the equity value".

Eventually, the authors have to concede that our primary analysis data set is restricted in terms of volume and sample size, which may limit our research statements and would definitely require more research, based on a more voluminous data set and sample size.

Summary of Research Findings and Conclusions

This study was based on an extended theoretical research through a literature review regarding workplace environment, leadership style, management methods, company value, and employee satisfaction. From this fundamental research, this study evaluates the relationship between employee satisfaction and company value by exemplary case study findings from Germany. A secondary data analysis, which also includes a study from the USA, in which the results of GPTW were compared with financial results, fosters previous findings. In an additional primary analysis, some statistical methods were used for an exemplary hypothesis testing procedure (Brenninger, 2013):

- There is theoretical and empirical evidence that employee satisfaction is comprised of a set of main elements like credibility, respect, fairness, pride, and camaraderie;
- There is empirical evidence that the set of employee satisfaction elements outlined above has an impact on company value in a sense that higher employee satisfaction usually increases the company value. This result is based on the secondary empirical analysis of this research;
- There is empirical evidence that indeed companies with assuredly higher degree of employee satisfaction over time are probably superior to average companies in terms of company value over time. This result is based on the findings of the complementary primary data analysis in this research (even though one has to admit the

relatively low sample size for this procedure);

- The main results of this research show that there may be evidence of a cause-effect relation between employee satisfaction and company value;
- Our hypothesis that the "degree of employee satisfaction has an impact on the level of company value" is (preliminary) substantiated.

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