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Master thesis

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Abstract

Increasing competitive forces present a real global challenge for businesses today. Accordingly, a trend of searching inside the organization to develop new competitive advantages is growing and a larger focus has hence been put on employees as a key to corporate success. In the light of this trend, older theories of if and how employee satisfaction influences financial performance have received a new meaning. Today it is broadly recognized that such a relationship exists.

The aim of this thesis is to investigate the properties of the impact employee satisfaction has on corporate financial performance in a context of German firms. Particular focus is laid on whether the strength of the relationship varies with the general level of employee satisfaction. This is made by performing a Relative Weight Analysis, in which the relative importance of different facets of employee satisfaction for corporate financial performance are evaluated in a study with 158 firms in Germany during a three year time period.

The results confirm that a relationship between employee satisfaction and corporate financial performance exists, which differs between different considered facets of employee satisfaction. Preliminary evidences of a stronger relationship for companies which have more satisfied employees on average are to some extent provided, especially with regard to satisfaction with payment.

Keywords: employee job satisfaction, financial performance, satisfaction-performance relationship, relative importance, relative weight analysis

JEL-classification: L21, L25, M12, M14, M54

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Outline

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III List of abbreviations

CI	Confidence Interval
FWER	Family-Wise Error Rate
HPWS	High Performance Work Systems
HR	Human Resources
HRM	Human Resource Management
JDI	Job Descriptive Index
MSQ	Minnesota Satisfaction Questionnaire
NACE	The Statistical Classification of Economic Activities in the European Community
NIE/Rev	Non-interest expenses as a percentage of total revenue
PCA	Principal Component Analysis
RBV	Resource-Based View of the firm
ROA	Return on Assets
ROI	Return on Investments
RRW	Rescaled Relative Weight
RW	Relative Weight
RWA	Relative Weight Analysis
SHRM	Strategic Human Resource Management
SPC	Service Profit Chain

1 Introduction

1.1 Research problem

It is generally known that the last decades have been subject to a globally changing economic landscape. Since the 1990's, industry-overreaching competitive forces have increased and traditional sources of competitive advantages such as quality, technology and economies of scale have become easier to imitate (Becker & Huselid, 1998, pp. 54-55). In the light of these increasing competitive forces, the recognition of firms to focus on the employees to find new sources of competitiveness has grown (Mira et al., 2019, p. 772). Theories of that satisfied employees and performance-related factors are related is referred to as the "job satisfaction-job performance relationship" (Judge et al., 2001, pp. 376-377) or "satisfaction-performance research" (Ostroff, 1992, p. 963).

Satisfaction-performance relationship theories have frequently been discussed and interpreted in different fields of literature. There is today a broad, general agreement among researchers that a connection between job satisfaction and financial performance exists, though in different forms and strengths. Literature in various fields indicate that the relationship between employee satisfaction and firm performance is of complex nature and is linked to factors such as the extent to which both intrinsic and extrinsic satisfaction is fulfilled (Bektas, 2017) to which employee dissatisfaction is detracted and motivation created (Herzberg, 1974), as well as the extent to which the human resource (HR) strategy is aligned with the company strategy (Becker & Huselid, 1998). It can hence be hypothesised that the satisfaction-performance relationship on firm level differs in strength depending on the extent to which general level of satisfaction is already obtained. Nevertheless, empirical satisfaction-performance literature on this topic is scarce. A research gap can hence be defined as the need to investigate whether the impact of employee job satisfaction on corporate financial performance differs in strength between companies that have higher respective lower general levels of employee satisfaction.

The aim of this master thesis is to analyse if and how the importance of employee satisfaction for corporate financial performance differs depending on if the employees are more respectively less satisfied. The related research question is defines as: *Does the relationship between employee satisfaction and corporate financial performance vary across companies with different level of employee satisfaction?* Firstly, the relationship between a set of considered satisfaction facets and corporate financial performance is tested. Secondly, the possible difference in strength of the satisfaction-performance relationship depending on the general level of employee satisfaction is assessed.

1.2 Research method

For the purpose of properly being able to analyse the stated research question, a review of the existing literature covers the research field in terms of behavioural literature as well as business and management literature. This research will lay the ground for the construction of an empirical model that properly addresses the research problem.

The method called the Relative Weight Analysis (RWA) is used as the main econometrical technique in this paper, according to which the empirical analyses are performed. The analyses are carried out in the data analysis program R and the package relaimpo. The RWA is a so called relative importance measurement tool, enabling joint investigations of the separate relative impact of different predictor variables on a chosen criterion (Tonidandel & LeBreton, 2015, pp. 207).

One important characteristic of the RWA is that it transforms the chosen variables to orthogonal ones, uncorrelated between each other, allowing a high amount of correlations among the original predictor variables (Tonidandel & LeBreton, 2011, pp. 3-4). The related nature of employee satisfaction facets typically imply a high amount of multicollinearity, which is problematic in otherwise frequently used methods such as multiple regression models (ibid.). Since the research problem demands a joint investigation of the different satisfaction facets, the RWA offers an attractive choice of research method in this paper.

1.3 Course of Investigation

As a starting point for addressing the research problem, the second chapter introduces existing theories and empirical literature on the topic of the connection between employee satisfaction and organizational performance. The aim of chapter 2 is to provide solid knowledge about the topic in focus, needed in order to define a research gap. The research gap as well as a definition of the research question and relevant hypotheses are presented in the end of chapter two.

In chapter 3, the data and sample used in the analyses are presented and discussed. Based on the literature review and the characteristics of the data, the choice of methodology for the empirical analyses is elaborated and presented. A reflection of possible methodological issues further shreds light on the details of how to carry out the analyses in order to obtain accurate results.

The statistical analyses are defined in detail and carried out in chapter 4. The results are split in two subchapters treating two different parts of the research question, or hypotheses, as defined with the research question in chapter two. After the results are presented, they are discussed and reflected upon in the light of previous research and the research question.

Finally, conclusions based on the analyses are summarized in chapter 5. After a summary of the research project, a section of critical acclaim highlights limitations of the research project and an outlook section present possible extensions of the study and recommendations for further research on the topic.

2 Literature Review

The following chapter aims to first define and highlight the satisfaction-performance concept and its managerial importance, laying a ground for the fundamental logic of the topic in general and this paper in particular. A historical background further serves as a base for understanding the growing importance of the topic and its present day relevance. Several theoretical and empirical ideas of the deeper logic of the satisfaction-performance relationship are then presented, followed by the main empirical research in the field. Lastly, a research gap is defined in the light of the literature review.

2.1 The satisfaction-performance concept

To be able to use the key concepts properly and draw accurate conclusions in this paper, the following two subchapters are devoted to identifying the concept of the satisfaction-performance relationship in general and of employee satisfaction in particular.

2.1.1 Definition of the satisfaction-performance relationship

It is generally considered that the last decades have seen a changing economic landscape around the world. Since the 1990's, industry-overreaching competitive forces have increased and traditional sources of competitive advantages such as superior quality, technology and economies of scale have become easier to imitate (Becker & Huselid, 1999, p. 54). As the economy around the world become more competitive and unpredictable, the recognition and tendency to focus on employees as possible sources for new competitive advantages has increased (Miraa et al., 2019, p. 772).

The collection of theories of that a well-treated and satisfied workforce and performance-related factors are positively has been referred to as the "job satisfaction-job performance relationship" (Judge et al., 2001, pp. 376-377) or "satisfaction-performance research" (Ostroff, 1992, p. 963). Numerous studies in different fields of research have all argued for an existing relationship between satisfaction-performance, although in different shapes and magnitudes (e.g. Ostroff, 1992; Harter et al., 2002; Melián-González et al., 2015). Nevertheless, theories within the field differ with respect to level of measurement, including the two main levels of measurement:

individual level and *unit-* or *organizational level* (Whitman et al., 2010, p. 42). The *individual level* of measurement focuses on satisfaction and performance of the individual employee (Ostroff, 1992, p. 963). In contrast to the individual level, the *unit- or organizational level* focuses on the aggregated impact of employee satisfaction on performance in the organization as a whole (Schneider et al., 2003, p. 836). Historically, the satisfaction-performance relationship has predominantly been analysed at the individual level (ibid.). Ostroff, however, early argued that only considering the individual level is insufficient if one wishes to investigate the performance outcomes in the organization as a whole (Ostroff, 1992, p. 963). She encouraged conduction of research on organizational, aggregate, level in order to be able to draw conclusions to organizational level outcomes (ibid.). Accordingly, it is argued that the organizational level is also the level of analysis that allows analysing employee satisfaction from a strategic management perspective and to make comparisons between firms (Fulmer et al., 2003, p. 968).

2.1.2 Definition of employee job satisfaction

Despite a broad recognition of its importance in modern management theory, there is still no single definition of employee job satisfaction which is considered the correct one (Aziri, 2011, p. 77). Employee satisfaction is a concept viewed from many different angles and through different perspectives. Consequently, there are numerous different and relevant definitions of the concept to consider (ibid.).

One definition of reads as: “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, p. 316). With this definition, Locke argues that job satisfaction depends on the degree to which employees are pleased with their work situation compared to the anticipated situation on the one hand, and the wish to achieve individual goals on the other (Locke, 1970, p. 485).

In their article about the impact of job satisfaction in industrial sales, Churchill et al. described job satisfaction as a construct that involves the feelings towards the work and work environment (Churchill et al., 1974, p. 254). They further underlined the importance of the sales person’s role for the company success and that ident potential effect identifying the important aspects of job satisfaction could have on the performance of the sales person (ibid.).

A third definition states that: “Job satisfaction is simply how people feel about their jobs and different aspects of their jobs. It is the extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs.” (Spector, 1997, p. 2). According to this definition, employee satisfaction is a concept that contains attitudes that are affected by several work-related aspects (ibid.). In line with the satisfaction-performance perspective, Spector further argued that measuring the extent to which people are satisfied at work can be useful to compare with organizational outcomes and consequently improve the business (ibid., p. 3).

2.2 A historical review of the satisfaction-performance relationship

In order to give a full picture of how the focus on, and importance of, the satisfaction-performance relationship has developed, the following subchapter treats the historical development of firms’ attitudes towards employee satisfaction and the relation to corporate performance.

The focus on employee satisfaction has its roots in the so called Human Relations Movement of the early 1900s, where the importance to consider human aspects such as job attitudes and their relationship to well-being and organizational performance was highlighted (Lawler & Porter, 1967, p. 20). The Human Relations Movement began to grow during the American interwar time of the 1930’s as a reaction to the strong focus on scientific management and the hard, inhumane, conditions under which employees worked in industries during that time (Bruce & Nyland, 2011, p. 383). The industrial focus on efficiency together with inhumane treatment of workers thus raised questions of how the human factor contributes to organizational effectiveness (ibid.). Consequently, the Human Relation Movement led to the birth of scientific research in organizational behaviour (ibid., p. 384).

Elton Mayo and Nathaniel Hawthorne are today recognized as the main figures in the early theories of organizational behaviour (ibid.). During the 1930’s, the so called Hawthorne experiments took place, in which Hawthorne and Mayo investigated the human behaviour of workers in American mid-west industries (ibid., p. 385). In these experiments, the connection between employee engagement and working conditions were closely observed during several years and in different contexts (Roethlisberger & Dickson, 1939). The results shed light on the importance in understanding workers needs not just on a physical level but also on a social level (ibid., pp. 553-554). From

the experiments, it was for example concluded that employee efficiency is directly related to certain work conditions such as rest pauses because of their social function rather than of their physical function (ibid., pp. 571-572).

Following the work of Mayo and Hawthorne, organizational theories have been created that describe how employees who are satisfied and feel valuable at work tend to work more efficiently towards common organizational objectives (e.g. Gouldner, 1960; McGregor, 1997). The *norm of reciprocity*, introduced by Gouldner, describes people as social creatures and that there is a direct relationship between benefits and motivation (Gouldner, 1960). Accordingly, Gouldner argued that employees are more likely motivated to perform in the interest of the company if the companies undertake actions that are beneficial for the employees (ibid. pp. 163-164).

In his article from 1957, Mc Gregor argued line with Gouldner but underlined that general increase in living standards also change the motivational factors of employees (McGregor, 1997, p. 206). He wrote that as basic needs are fulfilled Among employees, management need to look over its way of motivating employees and suggested that management should organise the company so that it allows employees to best reach their own goals by working in line with the organizational ones (Ibid, pp. 206-207).

Until fairly recently, however, theories and practices in organizational behaviour have been rather customer-oriented in which customers have been purely externally defined (Berthon et al., 2005, pp. 151-152). Today, the people within the firm are generally perceived as a possible source of competitive advantage (ibid., p. 152). The relevance of searching for competitiveness within the organization has given birth to the concept of internal marketing, in which a company's employees are defined as its first market (Ibid.). Within internal marketing, the exchange between management and employees is defined as the company's internal market (George, 1990, p. 64). It is argued that in order for a company to be able to achieve its external goals, its internal market must be effectively managed first (ibid.).

The relatively old theories of the satisfaction-performance relationship have received a new meaning in terms of firms focusing on employees as assets and with a potential to support companies in the time of increasing changing competitive business landscapes (Becker and Huselid, 1998, pp. 54-55). Nevertheless, the need to conduct more research on the still limited evidences on relation between employee job satisfaction and firm-level financial performance is underlined among researchers (Schneider et al., 2003, p. 836; Melián-González, 2015, p. 907).

2.3 Measuring employee job satisfaction

Job satisfaction is in research measured either as a single-item concept or as a multifaceted concept (Wanous et al., 1997, p. 247). The single-item, or global concept is sometimes used when overall satisfaction is to be assessed, whilst the multifaceted concept fits well for a deeper assessment of satisfaction, determining which aspects that are appreciated among workers and which aspects that could to be improved (Russel et al., 2004, p. 879).

In fact, measuring psychological, subjective constructs such as job satisfaction as a single-item measure is not commonly accepted and is often referred to as a “fatal error” in research (Wanous et al., 1997, p. 247). Interestingly, job satisfaction is considered an exception to this norm, as it has frequently been measured as a single-item measure. The acceptancy of relying only on such a measure for job satisfaction has, however, not increased over time (ibid.). From a managerial point of view, one held advantage of the multifaceted concept is that it allows more thorough comparisons to other variables of interest, since different parts of the overall employee satisfaction might relate differently to other variables such as financial performance (Hirschfeld, 2000, pp. 255-256). There is, however, no consensus of which facets that ought to be taken into account, or on which premises they should be selected in empirical analyses (van Saane et al., 2003, p. 191).

Despite a lack of consensus, several standardized instruments of job satisfaction measurement have been developed which more frequently appear in literature. One more popular instrument is the *Job Descriptive Index (JDI)*, developed by Smith, Kendall and Hulin in 1969 (Rain et al., 1991, p.295). The JDI is based on 72 items related to job satisfaction items, each consisting of a word or short statement on which respondents are to answer either with “Yes, I agree”, “No, I disagree” or with “I cannot

decide". The items are summarised into five subsets of facets, namely satisfaction with work itself, supervision, payment, promotion opportunities, and colleagues (Balzer et al., 2002, p. 173). The measure has become popular in research and has been translated into a number of different languages (ibid., p. 174).

Another recognized instrument is the *Minnesota Satisfaction Questionnaire (MSQ)* (Hirschfeld, 2000, p. 256). The MSQ was developed by Weiss, Dawis, England and Lofquist and is based on different items measuring different factors related to the work environment measured on a five-point Likert scale from "Very dissatisfied" to "Very satisfied" (Weiss et al., 1967, p. 1). The MSQ exists as a long and a short version, where long version contains 100 single work-related items scaled in 20 groups, and the short version consists only of the 20 grouped items (ibid.). The short form of the MSQ further consists of three scales, namely intrinsic, extrinsic and general satisfaction facets (ibid., p. 2). Researchers have expressed support for the MSQ because of the separation between intrinsic and extrinsic job satisfaction – the feelings about the nature of the job tasks versus feelings about aspect external to the actual job tasks (Hirschfeld, 2000, p. 256).

JDI and MSQ have further inspired to the creation of many new instruments for measuring employee satisfaction facets and most instruments contain characteristics or are direct extensions of them (e.g. Yeager, 1981; Stanton et al., 2002). Yeager examined accuracy of the scales of the JDI by performing a factor analysis as a scale reduction techniques and found that the facets 'supervision' and 'co-workers' a could both more accurately to be split in two, one relating to performance and one to interpersonal relations (Yeager, 1981, pp. 209-212). Stanton et al. further argued that too long surveys increase the risk of not receiving adequate answers to the survey and hence suggested an abridged version of the lengthy 72 item JDI, which by using clustering technique introduced an alternative survey capturing the majority of the information in the JDI facets but only including 25 items (Stanton et al., 2002, p. 189).

Choosing the facets by scaling a larger number of employee satisfaction items using factor analysis techniques to derive a fewer number of facets with high discriminative distance between each other is further an aspect of the MSQ seen in several modern studies investigating employee satisfaction from a multifaceted perspective (e.g. Schneider et al., 2003; Melián-González et al., 2015).

2.4 The rationale of the organizational satisfaction-performance relationship

Although a legitimate choice of satisfaction facets is vital to properly being able to study the differences of them, the question of how and why different facets impact job outcome and financial performance remains. The following subchapters explore existing key theories presenting the proposed logic behind the relationship of employee satisfaction and corporate performance.

2.4.1 Intrinsic satisfaction and motivation as performance enhancers

One commonly held argument is that the nature of the different satisfaction facets determines for its effect on organizational outcomes (Bektas, 2017, p. 627). Accordingly, aspects of job satisfaction are popularly divided into *intrinsic* and *extrinsic* satisfaction factors (ibid.). *Intrinsic job satisfaction* is derived from the employees and mirrors the expectations and the way he or she perceives the job and the job tasks (ibid.). Job aspects including in the concept of intrinsic satisfaction includes perceived work success, work safety, co-worker relationships, customer relationships and career opportunities and responsibility taking (ibid., p. 630). *Extrinsic job satisfaction* is defined as aspects not originating from the employee him or herself but that relate to the employees externally through the work environment (ibid., p. 631). Such aspects include to have a good work atmosphere, to feel team-coherence, to get appreciation from co-workers and superiors and compensation (ibid.).

Intrinsic and extrinsic factors are in turn believed to relate differently to variables of organizational outcome. In fact, a fulfilment of extrinsic satisfaction is assumed needed to have in place in order to be able to influence and obtain a wished level of intrinsic satisfaction among the work force (ibid.). The possibility for managers to influence overall company performance through managing its employee is thus closely connected with theories of hierarchical needs and motivation of employees (ibid.).

Of particular influence for modern day theories of satisfaction and performance is the renowned *two factor theory* by Herzberg (Ahmed et al., 2010, p. 71). The two factor theory stipulates that job satisfaction and dissatisfaction are independently defined by two different sets of job-related factors (Herzberg, 1974, p. 18). Whilst job satisfaction is connected to intrinsic factors of success, personal interests and growth opportunities – so called *motivation factors*, dissatisfaction, however, rather stems from the extrinsic job context, such as working conditions, company policies and interpersonal relations

– so called *hygiene factors* (ibid., pp. 18-21). Thus, the existence of hygiene factors is argued to counteract dissatisfaction, whilst the existence of motivating factors are needed in order to actually increase satisfaction and motivation in the work force (ibid.). The complete two factor model is displayed in figure 1.

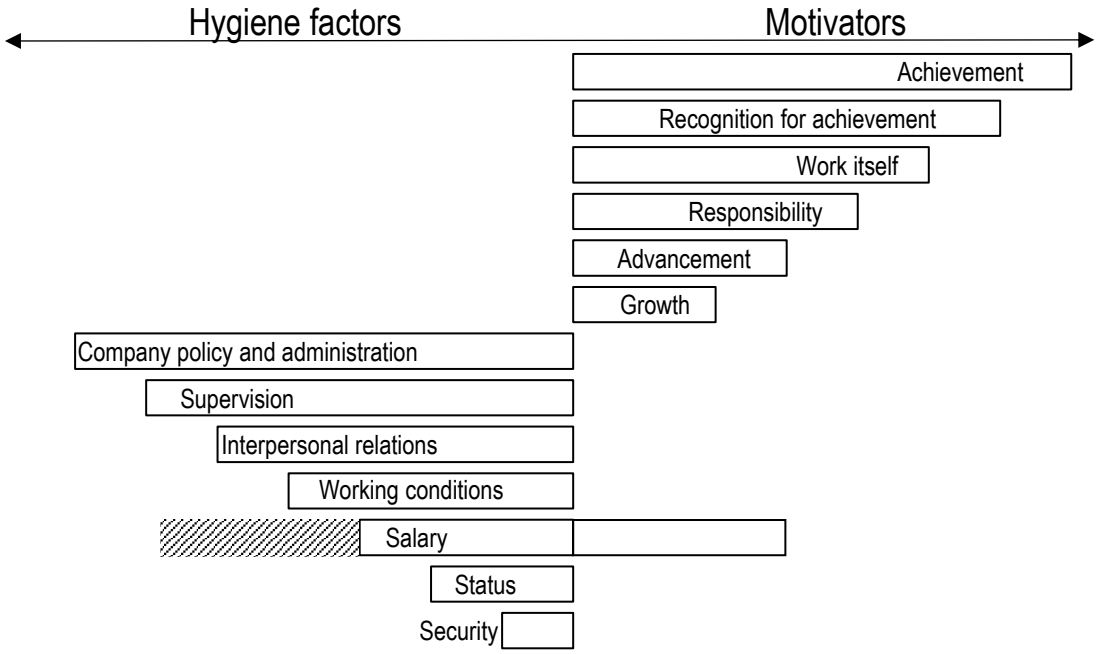


Figure 1: Herzberg's two factor model for motivation in the workplace
Source: author's own figure based on Herzberg, 1974, p. 21

As seen in figure 1, factors such as general working conditions and overall company policies are rather seen as necessary hygiene factors, whilst factors connected to the employees' own work and development possibilities are motivators or needs of higher order (Ibid., pp. 20-21). Interestingly, salary is considered as both a hygiene and a motivating factor because of its subjective nature. Herzberg argued that in sectors where remuneration is generally lower than the national average or that of competitors, it is considered as a source of dissatisfaction and the opposite in those with above national average or competitors' remuneration (ibid.).

Many studies relate to the two factor theory and present motivation in particular as a mediating factor in the relationship between employee satisfaction and organizational performance (Bektas, 2017, p. 631). Delaney and Huselid argued that motivation-enhancing HR-activities are essential for the possibility to draw advantage of skilled personnel and consequently to stay competitive in an increasing competitive business environment (Delaney & Huselid, 1996, p. 951).

In a study empirically testing the Herzberg two factor theory, it was further concluded that satisfied workers are easier to motivate than dissatisfied workers (Ahmed et al., 2010, pp. 73-74). Significant relationships between employee satisfaction and different intrinsic motivation factors such as recognition, work itself, career opportunities, responsibility and the feeling towards the company was found, whilst no relationship was found between employee satisfaction and extrinsic hygiene factors, in line with the two factor model theory (ibid.). On the other hand, Dobre underlined the importance of realizing that although a general effect of motivators on satisfaction and hence organizational performance does exists, the effect differs between individuals (Dobre, 2013, p. 53).

A relationship has also been found between employee satisfaction and organizational citizenship behaviour, defined as the attachment and commitment to the company and work above what is expected from the employee such as voluntarily working late at night or helping colleagues with their tasks in the hotel industry (González & Garazo, 2006, pp. 23-26). Additionally, intrinsically satisfied and highly committed employees have been found more willing to actively contribute to knowledge sharing in the organization than extrinsically satisfied ones (Hung et al., 2011, pp. 421-425). This fining is supported by Wasko and Faraj, who found that strong moral obligations and beliefs in the company motivates employees to share knowledge, rather than keeping it to themselves (Wasko & Faraj, 2000, p.155).

2.4.2 SHRM as employee satisfaction driver

Human Resource Management (HRM) has been described as a tool for potentially affecting aspects such knowledge, commitment as well as organizational outcomes (Miraa et al., 2019, p. 772). In line with the interest among firms of seeing HR as a part of the overall company strategy, Strategic Human Resource Management (SHRM) has been defined as the process of using HRM in a strategic manner that serves to enhance the fulfilment of overall organizational goals (Wright & McMahan, 1992, p. 298).

Closely related to the SHRM is the so called resource-based view of the firm (RBV) (ibid., p. 301). The RBV stipulates that firm-internal resources can be sources of sustained competitive advantage by exploitation of the firm's internal strengths (Barney, 1991, p. 99). But why are the employees' experiences to consider sustained

competitive advantages? A company is said to have a competitive advantage when: "[…] it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitor *and* when these other firms are unable to duplicate the benefits of this strategy." (ibid., p. 102). The RBV views a firm's internal resources as heterogeneous and immobile, hence hard for competitors to take over (Wright & McMahan, 1992, p. 301). It is further argued that if internal resources provide added value to the firm, are unique, difficult to imitate and to substitute with a resource from a competitor, it can be a source of sustained competitive advantage (ibid.). The RBV hence predicts a need to see a close connection between HR-related factors and corporate performance in order to effectively enhance the competitive position on the market competitive advantage of it (Barney, 1991, p. 116).

Similarly, the concept of High Performance Work Systems (HPWS) developed by Becker and Huselid builds on the RBV and suggests that employees should be seen: "[…] as a source of competitive advantage, rather than a cost to be minimized" (Becker & Huselid, 1998, p. 54). The HPWS explains how companies with well-structured and aligned internal systems are more likely to achieve higher corporate performance with the help of their employees. It demonstrates how internally consistent and coherent HRM systems are the key tools for enhancing the corporate performance through the human capital (ibid., p. 55). The relationship between HPWS and firm performance is illustrated in the figure 2.

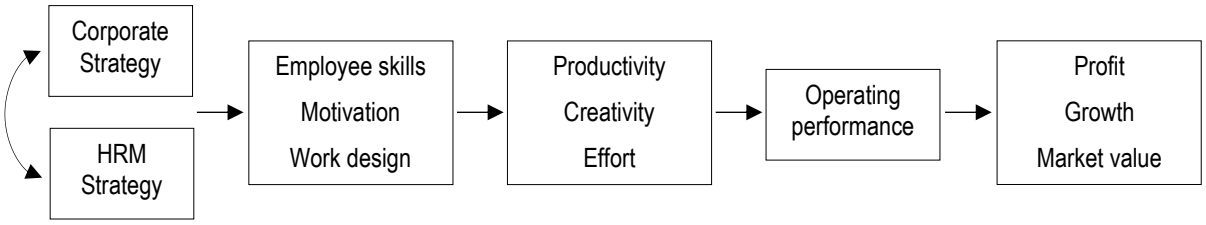


Figure 2: The High Performance Work System
Source: author's own figure based on Becker & Huselid, 1998, p. 59

Also here, the HRM system is seen as a tool to influence employee skills and motivation, needed to enhance performance and finally corporate profit, growth and the company value (ibid.). Furthermore, the concept of *alignment*, internally and externally, is especially emphasised in HPWS. Arguably, synergies that add extra value to the company from the human capital can be created when its HRM practices are aligned internally to a coherent HRM architecture, and the HRM and corporate strategy are aligned externally, synchronizing the employees' and company's goals

(Ibid.). This suggests a connection between high performing firms and employees that are properly cared for (ibid., p. 56). Becker and Huselid argued that the more sophisticated the HR architecture is, the higher is the market value per employee believed to be (ibid., p. 75).

In a study of over 600 manufacturing companies, Jeong and Choi referred to the theory of RBV and investigated the impact of HPWS on firm-level performance outcomes (Jeong & Choi, 2016, p. 320). HPWS was measured in terms of loyalty, commitment, promotions and continuous development. Furthermore, both operational and financial firm performance aspects were considered (ibid., pp. 334-335). In line with the theory, the results of their study could not only confirm the effect of HPWS on firm performance, but also the effect being mediated by employee job satisfaction (ibid., p. 336).

In a study of British public sector, Gould-Williams investigated the impact of HR practices and organizational performance (Gould-Williams, 2003, p. 28). The results revealed HR practices to have a significant positive impact on job satisfaction, organizational commitment as well as organizational performance (ibid., pp. 47-48). Furthermore, in their study among university employees, Asad khan et al. investigated the effect of HR activities on job performance through the passive impact of employee satisfaction (Asad khan et al., 2019, p. 78). The results suggested that certain HR processes such as recruitment, selection, appreciation and remuneration are indeed significant drivers of job performance through employee satisfaction (ibid., pp. 86-90).

2.4.3 Customer loyalty as a mediating factor

A separate branch of satisfaction-performance literature investigates the role of customers in mediating the relationship between employee satisfaction and financial performance at corporate level.

The theory of the Service Profit Chain (SPC), first elaborated by Heskett et al., stipulates that in a time where services becomes a larger part of business making, investing in employee satisfaction is connected to profitability indirectly by impacting customer satisfaction and loyalty (Heskett et al., 1994, p. 164). The SPC thus focuses on customer loyalty as the mediating factor between employee satisfaction and corporate performance (ibid., pp. 164-165). Especially customer loyalty is explained to be directly linked to customer satisfaction, which in turn is a result of high-value

services (ibid.). Satisfied, loyal and productive employees are the enablers of these high-value services (ibid., p. 165). Figure 3 illustrates the SPC.

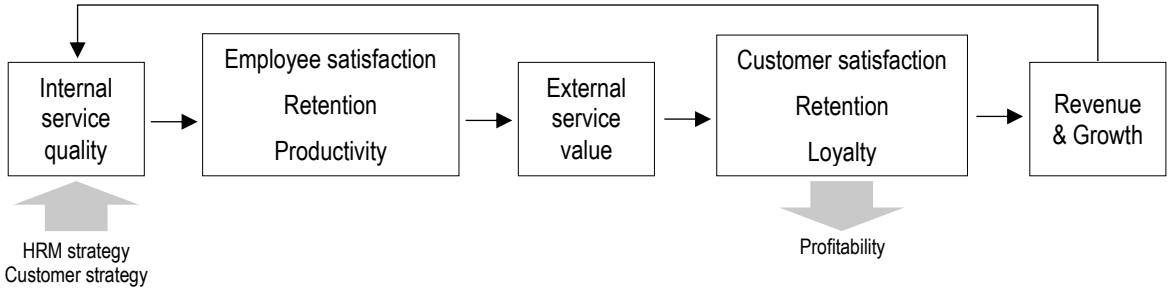


Figure 3: The Service Profit Chain
Source: author's own figure based on Heskett et al., 1994, p. 166

As illustrated in figure 3 above, Heskett et al. argue that employee satisfaction, loyalty and production is driven by internal quality, measured as the employees' feelings about their work, their social situation at work and the firm in large (ibid., pp. 165-168). In the employees impact the product value, which is the driver of customer satisfaction and loyalty and lastly company profitability, revenue and growth (ibid.). The theory also underlines the importance of having a leadership that understands the importance of implementing a customer and employee-oriented corporate culture for the SPC to be successful (ibid., p. 168).

Several researchers have investigated and supported the theory of the SPC. Ryan et al. empirically showed that aligned, shared values between employees is related to customer satisfaction as well as corporate productivity (Ryan et al., 1996, pp. 864-873). Based on the theory of the SPC, Chi and Grusoy found that a triangular relationship exists between multifaceted employee satisfaction, customer loyalty and corporate financial performance among hospitality companies (Chi & Gursoy, 2009, pp. 249-251). Hallowell provided additional evidence of the relation between customer satisfaction, customer loyalty and financial performance in the banking-retail sector (Hallowell, 1996, pp. 31-36).

2.5 Empirical satisfaction-performance applications on organizational level

In order to tie together the previous theories and literature of the different parts of the overall satisfaction-performance, the following subchapters aim to provide an overview of the existing and more recent empirical and quantitative applications of the corporate level satisfaction-financial performance relationship directly related to this paper.

Ostroff (1992) is often mentioned as a pioneer in advocating the importance of empirically analysing employee satisfaction and performance on organizational level (Balzer et al., 2002, p. 173; Fulmer et al., 2003, p. 967). Ostroff especially underlined that results from earlier individual level satisfaction-performance literature is likely to differ from the relationship on firm-aggregated level (Ostroff, 1992, p. 963). She analysed nine facets of employee satisfaction[1] on a 5-poiny Likert scale (1=very dissatisfied, 5=very satisfied) and five facets of organizational performance among 14,721 school teachers in 362 different schools (ibid., pp. 966-968). The analysis identified that changes in employee satisfaction had an impact on several of the analyzed aspects of corporate performance (ibid.).

Although the application was limited to the school environment, Ostroff made an important contribution to the general satisfaction-performance literature and the interest among researchers to apply the theory on an organizational level (Melián-González et al., 2015, p. 909; Judge et al., 2001, p. 381). Applications on organizational performance include both research on *business unit level* (e.g. Harter et al., 2002; Ryan et al., 1996) and on *firm level* (e.g. Melián-González et al., 2015; Schneider et al., 2003). Due to the relevance for this paper in particular, the following two subchapters present the empirical findings on the relationship between employee satisfaction and financial performance on these two levels.

[1] Satisfaction facets: co-workers; supervision; pay; administration; career advancement opportunities; student discipline; school curriculum; community and parental support; physical facilities and communication (Ostroff, 1992, pp. 966)

2.5.1 Business unit level satisfaction-performance relationship

One main reason for analyzing the satisfaction-performance relationship on business unit level is because this is the level on which companies typically conduct employee surveys (Harter et al., 2002, p. 268). Business-unit level analysis further enables including and comparing the results with business outcome variables (ibid.).

Harter et al. investigated financial performance as a possible factor to be influenced by employee satisfaction on business unit level (Harter et al., 2002, p. 268). By studying 7,939 business units among 36 companies in five different industries, they found a positive relationship between, among others, overall job satisfaction, employee engagement and business performance, measured in profit as percentage of revenue (ibid., p. 271). The relationship was found over different firms but of lower magnitude, possibly since organizational profitability is only distantly related to employee satisfaction, also affected by other factors, according to the authors (ibid., p. 274).

The impact of satisfaction on financial performance in service firms and business units has been studied in the hospitality sector. Evidence show a triangular relationship where job satisfaction has a significant impact on profitability, net profit and Return on Investment (ROI) indirectly through customer satisfaction in the hospitality service sector, in line with the SPC theory (Chi & Gursoy, 2009, p. 250). Employee satisfaction has also been proved to affect organizational commitment as well as hotel performance among U.S. hotel middle managers (Kim & Brymer, 2011, p. 1020).

Evidence from the bank retail industry also show evidence of significant relations between job attitudes in different bank divisions, customer satisfaction and financial effectiveness measured as and delinquency rate (Ryan et al., 1996, pp. 864-873), Return on Assets (ROA) and non-interest expenses as a share of total revenue (Hallowell, 1996, pp. 31-36). Findings of significant relations between bank retail employee satisfaction and loyalty on the one hand and customer satisfaction, loyalty and financial performance on the other, further support the theory of a triangular relationship between employees, customers and financial performance (Loveman, 1998, pp. 24-32). Yavas et al. further found empowerment to be the employee-related factor most strongly connected to service performance among bank frontline staff (Yavas et al., 2003, p. 261). On the contrary, ambiguity in the work role was found the strongest negative factor for staff performance (ibid.).

Studies within the food service industry have identified a time-lagged relationship, where restaurant chain employee attitudes in one year are associated with organizational effectiveness in the next year (Koys, 2001, pp. 108-112). It was concluded that both customer satisfaction and business profitability are influenced by different HR outcomes (ibid.). In a further study of food service chains, HR practices and organizational commitment were found to be strong predictors for high profitability and low operating expenses (Wright et al., 2003, p. 30-34.), in line with the theory of HPWS.

2.5.2 Firm level satisfaction-performance relationship

Several researchers have also pledged for the need to develop the research firm level (Fulmer et al., 2003, p. 967; Melián-González et al., p. 907). Despite that Ostroff laid an important foundation for an organizational level research in general, literature covering firm level performance from a financial perspective is scarce. Mainly three larger studies have been found that apply these on a corporate financial level, namely Fulmer et al. (2003), Schneider et al. (2003) and Melián-González et al. (2015). Due to their direct relevance for this paper, these are covered more precisely below.

In a study between the years 1998 and 2000 among 111 companies, Fulmer et al. analyzed whether being a "great place to Work" as of being listed on the famous Fortune List of the "100 Best Companies to Work For in America" [2] is related to superior financial and market performance (Fulmer et al., 2003, p. 965). By posing the question "If you have your way, how likely are you to be working for this organization one year from now?" (1=not at all likely, 6=very likely), the stability of employee attitude levels was assessed (ibid., p. 976). By also collecting information about ROA and market value of equity (market-to-book ratio), the listed firms were compared to a set of other companies, not on the Fortune list (ibid., pp. 973-979). In performing two group mean values and standard t-test comparisons, the study revealed that companies on the Fortune list of best companies did have continuously higher levels of employee satisfaction as well as financial performance over time, supporting the hypothesis being one of the top 100 companies to work for does in fact come with stable and highly positive financial performance (ibid., pp. 980-986). They further demonstrated

[2] The Fortune list of America's best companies to work for builds on a set of facets, addressing issues connected to aspects such as empowerment, fairness, respectfulness and social relations (Fulmer et al., 2003, pp. 978-979).

that an investment portfolio based on firms with superior employee relations would yield significantly higher cumulative ROI over the market in the analyzed time period (ibid., p. 987).

In their report “Which Comes First: Employee Attitudes or Organizational Financial and Market Performance?” Schneider et al. investigated the relationship between financial and market performance, measured as ROA and earnings per share, and several facets of employee satisfaction, among companies in the United States over eight years (Schneider et al., 2003, pp. 837-838). The relatively large time frame investigated, as compared to similar studies, further allowed them to address the topic of on the causality of the satisfaction-performance relationship, as indicated by the title (ibid., p. 837). The raw data on satisfaction, gathered from a consortium of companies which annually conduct large employee attitude surveys, were scaled down to a fewer amount of facets by performing a factor analysis (ibid., p. 838). By carrying out correlation and chi-square analyses with various time lags, significant relationships over time were found between corporate financial performance and satisfaction with payment and security (ibid., pp. 842-846). Payment satisfaction was found to have an impact on financial performance. Nevertheless, satisfaction with security was found to more strongly being impacted by financial performance than the opposite, indicating an ambiguous causality of the corporate level satisfaction-performance relationship (ibid.). It was thus concluded that whilst satisfaction with payment likely has an impact on organizational citizenship behavior and corporate performance, satisfaction with security will not actively incentivize behavioral changes (ibid., 847-849).

In similarity to the previously mentioned study, Melián-González et al. investigated the relationship between different facets of satisfaction with three variables of corporate financial performance, namely ROA, operating margin and revenue per employee among 475 companies (Melián-González et al., 2015, p. 906). Employee satisfaction data was gathered from the company review site Glassdoor (ibid, p. 914). Much like Schneider et al., (2003), the raw data was combined and scaled down to a fewer number of satisfaction facets including several single questions measuring similar aspects by using factor analysis (Melián-González et al., 2015, pp. 913-916). By performing multiple linear regression analyses, they found that satisfaction with senor leadership as well as compensation and benefits are the aspects with statistically significant, positive importance on all three variables of corporate financial

performance (ibid. pp. 916-919). No consistent relationship with financial performance could be found for any of the remaining facets (ibid.). The study further showed a significant effect of company size on operating margin and of company sector belonging on operating margin and on revenue per employee (ibid. p. 918).

2.6 Literature summary and definition of hypotheses

The existing empirical research made on organizational level provide evidence that a relationship between employee job satisfaction and different variables of financial performance exist on business unit level (e.g. Harter et al., 2002; Chi & Gursoy, 2009) as well as on firm level (Fulmer et al., 2003; Schneider, 2003; Melián-González et al., 2015). The advantages of considering employee job satisfaction as a multifaceted perspective when relating job satisfaction to other variables of interest has further been argued (Hirschfeld, 2000, pp. 255-256). Several empirical studies have also revealed a difference in impact on organizational performance between different satisfaction facets (Ostroff, 1992; Schneider, 2003; Melián-González et al., 2015).

According to the RBV, employees are considered a possible source of sustained competitive advantage (Barney, 1991, p. 99). Furthermore, management literature related to theories such as the HPWS and the SPC suggest that well-planned HRM aligned to the corporate strategy can influence employee satisfaction, which in turn has the possibility to impact corporate financial performance (e.g. Becker & Huselid, 1998; Jeong & Choi, 2016; Heskett et al., 1994; Gould-Williams, 2003).

Additionally, theories and research on motivation have been presented, suggesting that certain job factors can influence motivation and indirectly work performance, whilst other factors merely avoid occurrence of dissatisfaction (Herzberg, 1974). Intrinsically motivating factors have been proved to be more related to positive organizational behavior than factors extrinsic factors (Ahmed, 2010, pp. 73-74; Hung et al., 2011, pp. 421-425). Still, it is argued that extrinsic factors need to be fulfilled in order for intrinsic factors to be effective and potentially influence corporate financial performance (Bektas, 2017, p. 631).

With respect to the literature review, researchers and managers might ask themselves whether the impact of job satisfaction on financial performance is even across all levels of job satisfaction, or if a *performance premium effect* exists for those companies that successfully and strategically manage to obtain and maintain a highly satisfied and motivated work force.

Despite the obvious managerial relevance, little research has been done investigating if the impact employee satisfaction has on corporate financial performance is equal or differs between companies where the general employee job satisfaction is high and in those where it is low. There is consequently a gap in empirical knowledge about if and how the satisfaction-performance relationship variates between companies with different levels, or grades, of employee satisfaction. Analyzing this issue is hence the main purpose of this paper as well as contribution to existing literature. Accordingly, the main research question to be answered is defined as followed:

Does the relationship between employee satisfaction and corporate financial performance vary across companies with different levels of employee satisfaction?

Based on the empirical research on firm level reviewed earlier in this chapter (e.g. Fulmer. et al., 2003; Schneider et al., 2003; Melián-González et al., 2015), the satisfaction-performance relationship is expected to differ depending on sample and methodology used. Therefore, the general satisfaction-performance relationship will first be identified with the data and variables used in this project. Building on the identified general relationship, the difference in the relationship between groups of companies with different levels of overall employee satisfaction will be investigated. In the light of previous literature, two related hypotheses can be made:

> *Hypothesis 1: There is a positive relationship between employee satisfaction and financial performance, which varies between the different facets.*
>
> *Hypothesis 2: The strength of the satisfaction-performance relationship is positively related to the overall level of employee satisfaction of the company.*

The following chapters of this study are designed to test these hypotheses with the aim of providing an accurate answer to the posed research question. The next chapter escribes the data and methodology used in the analysis as well as presenting and interpreting the results. Conclusions based on these are drawn in chapter five.

3 Data and Methodology

This chapter introduces the data and empirical methodology used to analyse and answer the research question. A presentation of the data sources and the merged data set serves to inform the reader how the data is composed and from where it is collected. Thereafter, introductions and descriptive statistics of the main variables are presented. Lastly, the choice of empirical methodology based on the presented data characteristics is presented.

3.1 Data description

The final sample used in this paper is created by merging two parts of data. One part consists of employee job satisfaction data on corporate level. The other part consists of yearly corporate financial data from German firms. Descriptions of the two parts of data below.

3.1.1 Employee satisfaction data

The employee satisfaction data used in this paper is gathered from Statista GmbH's Employer Report (Arbeitgeber-Studie) in Germany. This data is not publicly accessible but can be bought, and was provided in confidence for this project specifically. Since 2013, Statista is identifying the best employers for the magazine FOCUS on the basis of employee's willingness to recommend their employer to others (Statista, 2019). The top 1,000 employers based on the willingness to recommend are published in FOCUS (ibid.).

Additionally, 54 work-relevant statements are asked, for the purpose of various analyses and which form the basis of the Employer Report (ibid.). More than 1,000 companies with at least 500 employees[3] from a variety of different sectors are annually reviewed in the study, with the aim to provide insights to which factors that have the greatest influence on employer attractiveness for the companies considered as well as for the general workforce (ibid.). With respect to the minimum number of employees and the definition of the European Commission, the companies reviewed are to define as large-sized (European Commission, 2016).

[3] Companies within the internet sector having with less than 500 employees are included in the study (Statista, 2019).

The Employer Report consists of a combination of data gathered through an own survey conducted through a yearly Online-Access-Panel, as well as from the German career platform Xing and the employer review website Kununu.com (Statista, 2019). Respondents from the Online-Access-Panel and from Xing rate their employer with regard to 54 different individual questions or items. To extend the base, the data from Kununu was also used, in cases single item values of the facets were not available. All review questions are posed as statements, measured on a five point Likert scale, where 1 corresponds to “not applicable at all” and 5 corresponds to “fully applicable” (ibid.).

In order to identify a fewer number of facets from the single items, Principal Component Analyses (PCA’s) were carried out across all employers and items. From the PCA, seven employee satisfaction facets have been derived, each consisting of a number of related single items, which are used on an annual basis in order to enable comparisons over time (ibid.). These seven facets are used as measures for employee job satisfaction within this study. A thorough description of the facets and the single items included in each facet will be presented in the chapter for variable descriptions. Due to the time frame available for the financial data, the employee satisfaction data used is in this project is retrieved from the Employer Report of the year 2014 (Statista, 2014), year 2015 (Statista, 2015) as well as year 2016 (Statista, 2016).

3.1.2 Financial performance data

The data used to measure financial performance is obtained from an unbalanced panel data set covering data from around 600 companies over the time period 2014 to 2016. This data was researched, gathered and compiled by Statista directly from annual reports, publically accessible online. The data collected includes a number of financial indicators, such as total assets, equity, debt, net profit and cash flow.

Due to differences in the extent to which companies publish historical financial figures online, data on several variables is missing for a substantial part of the reviewed companies. The further use of the financial data will be covered under the subchapter for variable descriptions.

3.2 Variable selection and description

The following subchapter describes the choice as well as the characteristics of the variables included in the final data set. These variables are then used in order to carry out the statistical analyses of this paper. Since the research question focuses on evaluating the impact of employee satisfaction on financial performance, the variables are presented in groups of predictor variables and criterion variables. A few additional variables included are also presented. A complete list of all variables and their sources can be found in appendix I.

3.2.1 Predictor variables

The predictor, or independent, variables used are measured at company level and include the seven employee satisfaction facets retrieved from Statista's yearly Employer Report as well as a measure of overall satisfaction, calculated on the basis of the seven facets. As mentioned, the satisfaction facets used in this study are a combination of related items measured on a 5-point Likert scale where 1 corresponds to "not at all applicable" and 5 to "fully applicable". The facet values are calculated as the average value from all available company reviews, resulting in one score per company and facet (Statista, 2019). Table 1 below presents the seven satisfaction facets and each of its underlying questions covered yearly in the Employer Report.

Satisfaction facet	Single items
Balance *(*Workload and balance*)*	- The family is taken into consideration - I can carry out my work also in the long term without health burdens - There is no group pressure with regard to working hours - I can design my work myself - Working hours are within normal limits - Holidays can be taken as far as possible according to your wishes
Career *(*Continuous development & prospects)	- The company offers good opportunities for personal development - Long-serving colleagues are valued and promoted - My employer offers interesting development opportunities - My employer encourages me to take the initiative and develop new ideas. - Employees are encouraged through continuing trainings - My direct supervisor includes the employees the employees in desicions - The criteria for career advancements are known - Regular meetings for daily business take place
Conditions *(*Conditions & equipment*)*	- My employer ensures a safe and ergonomic workplace. - The working conditions (rooms, computers, etc.) are appropriate to the tasks - The working conditions (rooms, computers, etc.) are up to date with the latest technical standards. - Ventilation, lighting, noise levels are pleasant

Image *(*Image & Growth*)*	- Employees talk well about their company - The company management is strong and loyal to the employees - The company benefits from a good image - Employment with my employer is secure - The number of employees at my employer is growing
Pay *(Payment)*	- The wages & salaries correspond to the responsibilities - The company pays a satisfactory salary / wage - Social benefits are offered (pension, insurance,..)
Relation *(*Working together & superior behaviour*)*	- The company strives for a good working atmosphere - There is a climate of fairness and trustfulness - Good performance is recognised and appreciated - The working atmosphere in my working environment is good. - The work is fairly distributed - My direct superior gives me personal appreciation - My direct supervisor makes clear and comprehensible decisions - My direct supervisor contributes to conflict resolution - I receive the information necessary for carrying out my work - The colleagues treat each other honestly and directly - Colleagues work well together
Sustain *(Sustainability)*	- The company pays attention to climate protection (energy consumption etc.). - The company pays attention to environmental protection (recycling, etc.). - The company supports fair trade.

Table 1: The employee satisfaction facets in Statista's Employer Report
Source: author's own table based on the Employer Report: Statista, 2014; Statista, 2015; Statista, 2016

Reducing a larger number of items through scaling techniques such as factor analysis is seen in literature the field of satisfaction facet generations practice in retrieving employee satisfaction facets (e.g. Melián-González et al., 2015; Schneider et al., 2003), supporting the use of the facets from the Employer Report. Moreover, although no consensus regarding the best set of satisfaction facets exist (van Saane et al., 2003, p. 191), several recognised groups of employee satisfaction facets include the majority of facets covered in this paper, such as the JDI (Rain et al., 1991) and the MSQ (Weiss et al., 1967), further confirming the relevance of using the selected predictor variables to carry out the analysis.

A variable called *overall satisfaction* was calculated by summing and averaging the scores for all seven facets of each observation. This variable serves as a way to measure the average relationship between satisfaction and financial performance, without taking the differences between the facets into account. An obvious disadvantage of calculating overall satisfaction as a pure facet average is that it averages eventual interesting variation in the data. It has also been argued that overall satisfaction is not equal to the sum of some single satisfaction facets (Scarpello & Campbell, 1983). On the other hand, several researchers argue the opposite (Ferratt,

1981; Wanous et al., 1997). In any case, the main purpose of the overall satisfaction variable in this study is to give an overview of in which companies the employees are generally more respectively less satisfied.

3.2.2 Criterion variables

Two variables are in this study used as criterion variables, or dependent, measuring corporate level financial performance. These are net profit and net profit per employee.

Net profit, or net income, measures the total annual profit in each company, after all costs and taxes have been accounted for, as stated in the respective annual report[4]. In the case of companies operating in several countries, the variable represents the net profit made in the German part of the company. The net profit is measured in Euro amounts. Profits in absolute values is a frequently used variable for measuring when measuring corporate financial performance in relation to employee satisfaction (e.g. Ryan et al., 1996; Koys, 2001; Wright et al., 2003).

The variable *net profit per employee* is constructed by dividing the company's yearly net profit by the number of employees employed in Germany during the same year. Measures of financial performance that take the number of employees into account have been seen in previous satisfaction-performance literature (Melián-González et al., 2015). Since this paper focuses on the employees as a potential valuable assets for companies, this approach is considered to be of particular relevance here. Furthermore, comparisons of the models for net profit in absolute value and with adjustments for the number of employees serves to add a dimension to the analyses, focusing on the effect of taking the number of employees into account.

Data over employee numbers is missing for a few companies. These cases have been individually and automatically removed in the statistical analyses with net profit per employee as dependent variable. Removing missing data reduces the sample size and hence makes the statistical estimates less precise (Wooldridge, 2014, p. 262). However, removing missing data is to consider of minor effect if the data missing is of random nature and small in relation to the total sample (Kim & Curry, 1977, pp. 215-217).

[4] German definition of net profit: Jahresüberschuss/Jahresfehlbetrag nach Steuern (§ 275 HGB)

3.2.3 Additional variables

Additional variables available in the data set that are believed to have an impact on the financial performance were also included in the final data set. First of all, a *year dummy* was constructed and included for the three years included in the analysis, year 2014 to 2016 with in order to account for the time series effects in the panel data set (Wooldridge, 2014, pp. 389-391). Year 2014 is defined as the reference group and hence dropped from the model in order to avoid the dummy variable trap of perfect collinearity in the model (ibid., p. 184).

An *industry dummy* variable based on the respective companies' industry belonging was also created and included to the data set. Industry belonging has been included in existing literature on the organizational satisfaction-performance relationship across firms as a relevant aspect to observe (Melián-González et al., 2015). The information about industries was gathered from the Employer Report, which categorizes the firms into 22 industries (Statista, 2019). In order to properly reduce the number of industries to fewer categories, they were grouped according to the head groups in the statistical classification of economic activity in the European Community, also known as the NACE (European Commission, 2008). Consequently, the number of industries were reduced to eight, where one is excluded as a reference category. See appendix II for a detailed overview of the original and grouped industries.

Firm size is included as a variable in this paper to account for the so called "size effect" implying that larger firms often perform stronger financially (Dang et al., 2018, pp. 159-160). Results of empirical research in corporate finance has proved to be highly sensitive to the way firm size is measured and choosing the proper way to measure firm size is thus of importance (ibid.). Common ways to measure firm size in financial research include total assets, number of employees, total sales and market value of equity (ibid., p. 160). In this paper, the logarithm of total assets will be used to measure firm size.

3.2.4 The merged data set

By merging the data from the Employer Report with the financial data available, a data set covering employee satisfaction scores as well as net profits over time was created. Due to that the available financial data is limited to the years 2014-2016, this is the maximal time period possible to use. The merged sample for the maximal time period is based on 474 observations covering a total of 158 companies during the above mentioned three year period. The data set can be viewed in appendix XI.

Since the data originates from two different sources, it was merged and cleaned prior to the execution of statistical inferences. Firstly, only companies were selected for which both data on employee satisfaction and net profit were available. Companies with missing data in either the employee satisfaction variables, or the given financial variables were hence dropped from the data set. Since data over employee satisfaction indicators cover notably more firms than the financial data does and since the required financial information was not available for all firms, merging the data led to a relatively large decrease in the total company coverage compared to the original number of firms.

Moreover, extreme values defined as values beyond 1.5 times the respective variable interquartile range were found for the majority of many variables. These are visualized in boxplots presented in appendix III. After having controlled for that the extreme values are plausible and not a result of calculation errors, they were kept in the final sample. Since variations in the employee satisfaction data and the financial data are of high interest in this study, the extreme values might provide valuable insights.

3.3 Descriptive statistics

3.3.1 Predictor variable descriptive statistics

Table 2 shows the descriptive statistics for the predictor variables included in the sample. The mean values of the satisfaction facets all lay above 3.0 and below 4.0. Since a value of 1.0 represent the minimum level of satisfaction and 5.0 the maximum level of satisfaction, the average company in the sample can be said to have a work force somewhat more satisfied than unsatisfied. The slightly higher standard deviations as well as difference between minimum and maximum values of the facets Pay and $Sustain$ indicate that satisfaction with payment and sustainability are the aspects that differ the most between the investigated companies and over time.

Variable	*N*	*Mean*	*Median*	*Std.Dev*	*Min*	*Max*
Balance	475	3.65	3.70	0.44	2.08	4.65
Career	475	3.53	3.53	0.44	2.09	4.91
Conditions	475	3.67	3.69	0.42	2.28	4.96
Image	475	3.67	3.66	0.49	2.14	4.96
Pay	475	3.60	3.66	0.50	1.99	4.93
Relation	475	3.66	3.67	0.39	2.13	4.91
Sustain	475	3.58	3.64	0.50	1.71	4.91

Table 2: Descriptive statistics – predictor variables
Source: author's own table

Figure 4 shows the development of the mean satisfaction facet values over the three years covered in this sample. There seem to be a general decrease in all facets except for $Conditions$ from year 2015 to 2016. Considering that all facets still remain above three, the decrease can be considered as relatively small and the predictor variables in general stable.

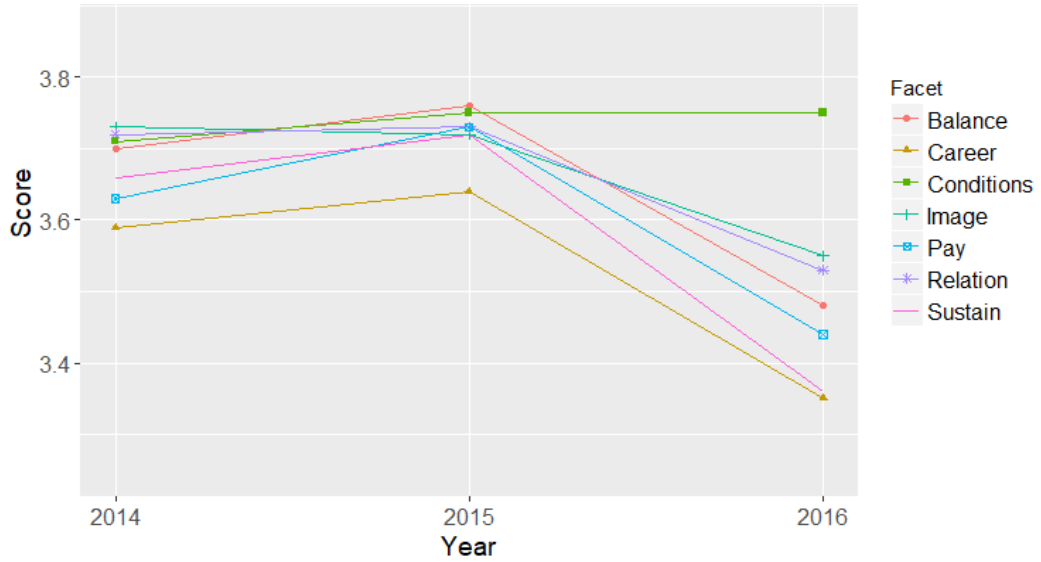


Figure 4: Development of the satisfaction facets over time
Source: author's own figure, made in R

3.3.2 Criterion variable descriptive statistics

Descriptive statistics of the financial variables included in the sample are presented in table 3.

Variable	*N*	*Mean*	*Median*	*Std.Dev*	*Min*	*Max*
Netprofit	475	3.84E+08	7.81E+07	9.85E+08	5.24E+04	8.85E+09
Netprofit/Employee	428	3.79E+04	1.35E+04	6.44E+04	8.96E+00	4.05E+05

Table 3: Descriptive statistics – criterion variables
Source: author's own table

The number of observations for net profit per employee is reduced due to missing data on employee numbers in certain companies. The companies included in the sample have on average an annual net profit of around 380 million Euro and of almost 38,000 Euro per employee. The relatively large standard deviation of net profit indicates that the financial situation varies a lot across the companies. The variation in net profit per employee is somewhat smaller, demonstrating the elimination of the impact of company size thorough accounting for the number of employees.

Furthermore, the mean values for both variables are larger than the median values, indicating right skewed variable distributions. Histograms over the financial performance variables presented in appendix IV confirm that the financial variables have skewed variable distributions. Using variables in their logarithmic form is a commonly used method to achieve approximate normal distribution when variables are skewed (Wooldridge, 2014, pp. 157-158). It is also considered an attractive transformation when handling large monetary values since it narrows the data range (ibid.). Consequently, the variable net profit as well as net profit per employee were both transformed to their natural logarithmic forms.

An overview of the financial situation in each industry group is presented in table 4. As described in chapter 3.2.3, the firms were carefully assigned to industry groups according to the NACE-classification (European Commission, 2008). A total of eight groups of industries were composed. The detailed industry grouping composition is presented in appendix II.

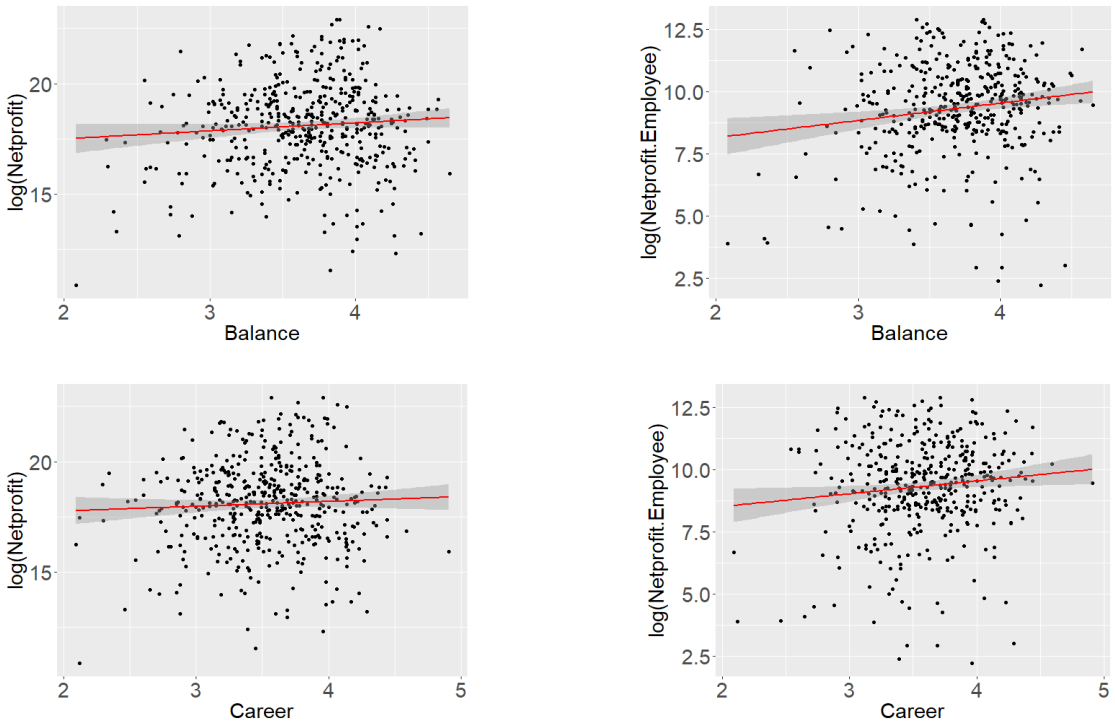
Industry group		**Netprofit**		**Netprofit/Employee**	
	N	*Mean*	*Median*	*Mean*	*Median*
Manufacturing	123	7.16E+08	1.20E+08	6.59E+04	2.60E+04
Wholesale & Retail Trade	135	2.50E+08	7.87E+07	2.58E+04	9.40E+03
Transportation & Storage	21	4.16E+08	1.57E+08	3.10E+04	1.65E+04
Information & Communication	21	7.83E+08	6.18E+07	3.86E+04	1.62E+04
Financial & Insurance services	81	3.26E+08	5.94E+07	3.45E+04	1.43E+04
Professional, Scientific & Technical Activities	54	1.20E+08	4.21E+07	2.67E+04	6.96E+03
Human Health & Social Work Activities	18	7.33E+07	5.13E+07	2.77E+03	2.17E+03
Arts, Entertainment & Recreation	21	3.88E+07	1.62E+07	1.67E+04	9.40E+03
Total	***474***	***3.84E+08***	***7.81E+07***	***3.79E+04***	***1.35E+04***

Table 4: Financial performance by industry group
Source: author's own table

As seen in table 4, the number of firms in the different industries differ, with a few containing the majority of the firms. Furthermore, some differences in profit sizes can be seen between the different industries, indicating some industry-specific effects might affect the general profit level in the industry. It can further be noticed that mean profits tend to be higher than the median values, indicating right skewed variable distributions also when considering the separate industries.

3.3.3 Correlations between the selected variables

A correlation analysis serves as a first indication of possible relationships between the criterion and predictor variables of interest to be investigated further. Figure 5 below illustrates the correlations between each predictor variable and the criterion variables. The red line represents best fitted regression lines with minimum minimal sum of squared errors between each pair of variables. By judging from the plots, relationships between the employee satisfaction facets and the variables of financial performance seem to exist, if somewhat weak. The relationship appear to be slightly stronger between financial performance and the satisfaction facets Pay, $Conditions$ and $Sustain$. Moreover, the steeper lines suggest that the relationships are generally more positive for net profit adjusted for number of employees, indicating that a relationship exists also when controlling for the earlier mentioned “size-effect”.



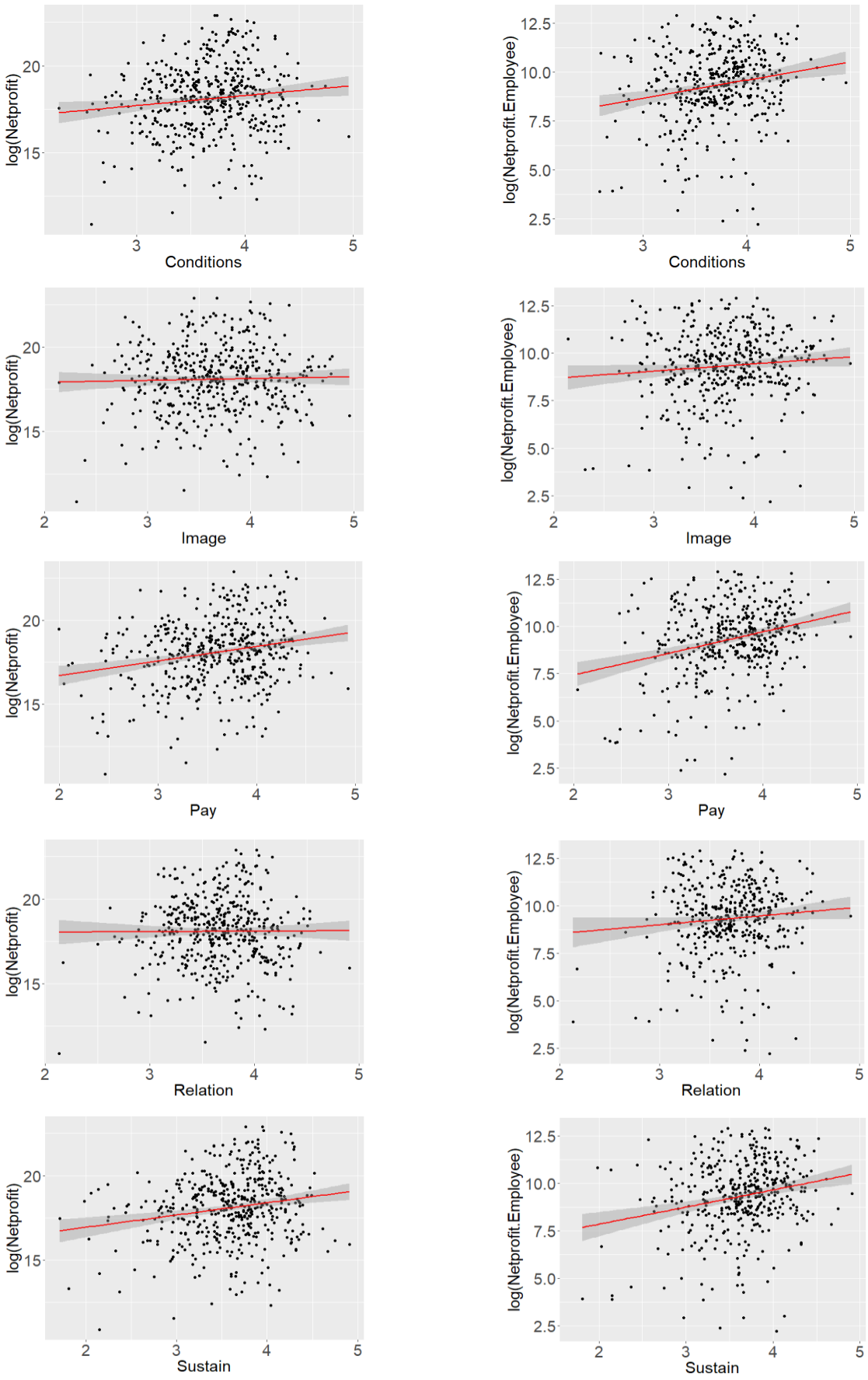


Figure 5: Financial performance-satisfaction facet score correlations
Source: author's own figure, made in R

A Pearson correlation coefficient matrix of both criterion and all numeric predictor variables considered can be found in appendix V. This matrix also shows a positive but rather small correlation coefficients between the criterion and predictor variables. The correlations between the criterion and the predictors Pay and $Sustain$ are higher, with correlation coefficients of 0.22 respectively 0.17 respectively considering $log(Netprofit)$ and 0.25 respectively 0.21 considering $log(Netprofit/Employee)$.

Moreover, the matrix reveals strong correlations between each predictor variable. The correlation matrix below is a sample of the larger correlation matrix and illustrates the degree to which the job satisfaction facets correlate to each other. With correlation coefficients varying between 0.62 and 0.94, it can be concluded that the facets are highly correlated. Since the facets measure different aspects of the same umbrella concept of employee job satisfaction, the result are considered plausible.

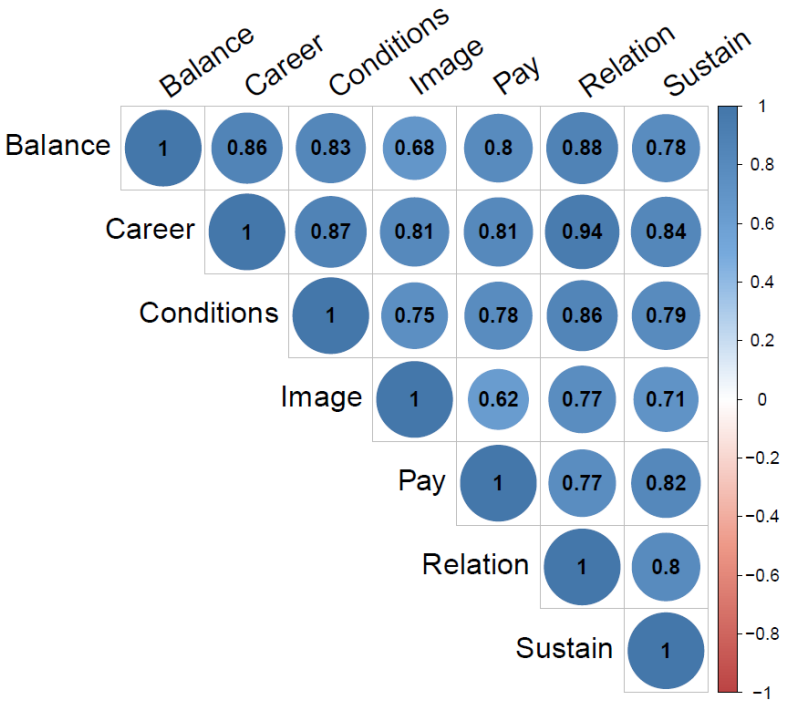


Figure 6: Employee satisfaction facet correlation matrix
Source: author's own figure, made in R

Although expected, the high correlation within the set of explanatory variables is relevant regarding choice of further empirical analysis method since. High correlations between the predictor variables is especially problematic with respect to interpreting regression estimates and significances in multiple regression models – otherwise widely used in assessing the predictive power of a model (LeBreton & Tonidandel, 2008, p. 329). More specifically, when several predictors are correlated, the multiple

regression fails to unambiguously show the relative contribution to the model variance by each predictor (Darlington, 1968, pp. 165-166). Hence, even though multicollinearity does not violate the general statistical assumptions of the multiple regression, it problematizes the interpretability of the model (Schroeder, 1990, p.175).

3.4 Empirical methodology

The methodology to analyse the relationship between different facets of employee satisfaction and corporate financial performance has been carefully chosen with respect to the characteristics of the data at hand as well as the research question that is to be answered.

3.4.1 Model discussion and selection

The high levels of correlation between the intended predictor variables seen above is common for data sets consisting of observational data (Grömping, 2006, pp. 1-2). A common solution to reduce high levels of multicollinearity involves different variable reduction methods such as excluding predictors based on their Variance Inflation Factors, measuring the degree to which the explanatory power of the model is impacted of multicollinearity (Schroeder, 1990, pp. 179-180). Since the research purpose of this paper is of evaluative nature, aiming to investigate and evaluate the underlying relationship between a set of selected variables, treating multicollinearity through reducing the number of variables is not considered an optimal solution in this case.

During the last couple of decades, several methods of so called *relative importance* have been developed, allowing more accurate statistical inferences of relative predictor importance in the case of highly correlated predictor variables in studies of evaluative purpose (LeBreton & Tonidandel, 2008, p. 329). Relative importance can be defined as: “The proportionate contribution each predictor makes to R2, considering both its direct effect (i.e., its correlation with the criterion) and its effect when combined with the other variables in the regression equation” (Johnson & LeBreton, 2004, p. 240). In other words, the attractiveness of relative importance measures lays in the possibility to derive the extent to which the predicted variability in criterion is explained by a defined set of highly correlated predictor variables (Tonidandel & LeBreton, 2011, p. 1).

With respect to the above explained multiple regression issues, the use of a relative importance method is considered a legitimate option needed in order to properly being able to analyse the research problem of this paper. It has been argued that whilst multiple linear regression models are useful for deriving a set of predictors that maximizes the variance in the criterion, relative importance measures would allow one to draw more accurate conclusions as to how the variance in the criterion is distributed among a predetermined set of predictors (Johnson, 2004, pp. 283-284). In the frame of this research project, using a method of relative importance would thus allow analysing the effect of employee satisfaction facets on financial performance jointly and eliminate the problem of multicollinearity.

3.4.2 Model description

One measure of relative importance is the *Relative Weight Analysis* (RWA). The RWA has been described as especially fitting when the predictor variables are highly correlated and the primary concern of the research is to analyse the relative importance of each considered predictor variable for the variability in the dependent variable (Johnson, 2004, p.284).

Relative Weights (RW), ε_j, also called the Johnson's Relative Weights, is commonly incorporated in the RWA and especially addresses the shortcomings of multiple regression analysis when multicollinearity is present through a variable transformation approach (Tonidandel & LeBreton, 2011, pp. 3-5). From a linear model,

$$Y = \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n,$$

where Y is the criterion and β_j are the beta coefficients of the original set of predictor variables X_j , $j = (1, \dots, n)$, the predictors are transformed to a new set of rotated orthogonal variables Z_k, that are maximally related to the respective original variable but uncorrelated between each other (Tonidandel et al., 2009, p. 389). Hereby, the original predictor X_j are linked to the dependent variable Y, and simultaneously minimizing the problem of multicollinearity (ibid.). The link between X_j and Y can be described in two steps, where the first one sets the relation between the original and its maximally rotated orthogonal variables, illustrated as follows:

$$X_j = \lambda_{j1} Z_1 + \lambda_{j2} Z_2 + \cdots + \lambda_{jk} Z_k + \omega,$$

where λ_{jk} is the standardized weight linking each original variable j to its transformed correspondent k, and ω corresponds to the error term (ibid.). Subsequently, the relationship between the dependent variable Y, and the transformed variables Z_k, is described as

$$Y = \beta_1 Z_1 + \beta_2 Z_2 + \cdots + \beta_k Z_k + v,$$

where β_k is the standardized slope coefficient relating each transformed predictor k to the output Y. The term v is the associated error term (ibid.). Thirdly, the RWs for the original predictor variable j is calculated as

$$\varepsilon_j = \lambda_{j1}^2 \beta_1^2 + \lambda_{j2}^2 \beta_2^2 + \cdots + \lambda_{jk}^2 \beta_k^2,$$

where λ_{jk}^2 is the square of the weight described above, representing the relative impact of Z_k on X_j. The parameter β_k^2 is the squared standardized coefficient corresponding to the relative impact of Z_k on Y. Consequently, the product $\lambda_{jk}^2 \times \beta_k^2$ becomes the share of variance in Y explained by X_j through Z_k (ibid.).

The equations above, showing the indirect relationship between the predictor variables and the dependent variable through the orthogonal variable transformation, is also illustrated in the following graphic. It shows the logic of the constructed orthogonal variables Z_k and the standardized coefficients λ_{jk} as links between the original predictor X_j and the dependent variable Y, allowing estimations of relative importance of each X_j on Y.

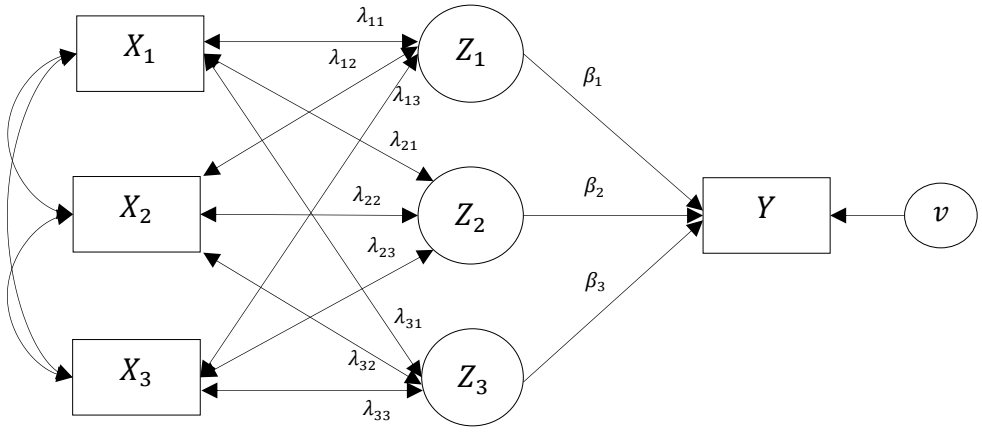


Figure 7: The Logic of the Relative Weights Analysis for three predictors
Source: Author's own figure based on Tonidandel et al., 2009, p. 390

The constructed RWs, ε_j, all take values between zero and one (Johnson, 2004, p. 284) and the total explanatory power of the model can be defined as total variance explained by all considered explanatory factors, hence the sum of RWs ε_j, associated with each included predictor j also ranging between zero and one (ibid.):

$$R^2 = \sum(\varepsilon_j).$$

The property that R-squared always corresponds to the exact sum of all RWs indicates the uncorrelated nature of the new orthogonal predictors and implies that the RWs produced are consistent with the estimated partial variation in the dependent variable derived from each predictor variable separately (ibid.).

One characteristic of the RWs that differs from conventional models is that the precise sample distributions of the RWs are unidentified (Tonidandel et al., 2009, p. 390). This implies that no standardized method in determining the statistical significance of the individual RWs exists, a potential shortcoming of the RWA (ibid.). In order to deal with the issue of determining the accuracy to statistical estimates, the technique of *bootstrapping* is frequently used (ibid.). Bootstrapping is a method of sampling randomly with replacement from the existing data set in order to create a larger number of data sets on which a statistic of interest such as the sample mean variance can be calculated (Efron, 1979, pp. 2-5). By aggregating this statistic over all resampled datasets, a general sample distribution of the sample mean variance is asymptotically derived (ibid.). By computing confidence intervals (CI) around the RWs, bootstrapping allows measuring the accuracy and prediction error rate of the predictor variables (Johnson, 2004, p. 284).

If X is a population of N observations and p variables, with the true RWs $(\varepsilon_1, \varepsilon_2, \dots, \varepsilon_p)$, then x is an independent, random sample with n observations and estimated RWs $(e_1, e_2, \dots, e_p)$ (ibid., pp. 284-285). Bootstrapping implies a repetition of this sampling with replacement procedure. In this case, this sample would be the first bootstrap sample x_1^*, with bootstrap estimates of RWs $(e_{11}^*, e_{12}^*, \dots, e_{1p}^*)$. By repeating the bootstrap procedure i times, the number of independent estimates $(e_{11}^*, e_{12}^*, \dots, e_{1p}^*)$, $(e_{21}^*, e_{22}^*, \dots, e_{2p}^*)$,…, $(e_{i1}^*, e_{i2}^*, \dots, e_{ip}^*)$, will form the base for the estimation of the RWs $(e_1, e_2, \dots, e_p)$ and their CIs (ibid.). The estimation of RWs and their exact relation to the original dependent and predictor variables are also represented in the figure above.

Comparing the CIs between the predictors can further be used to compare the difference between the RWs and determine if they are statistically different from each other (Tonidandel et al., 2009, pp. 390-391). By subtracting the RW of one variable from that of another variable in all bootstrap samples, the standard deviation of the differences can be computed and used to construct new CIs around the difference of the RWs (ibid., p. 391). The difference between the two RWs is then considered statistically significant if the new CI does not include zero, at the given level of significance (ibid.). Bootstrapping will hence be used in this paper to assess the spread sample distributions and whether the predictors as statistically different from each other.

Since the sample distribution of the RW is unknown and since the RWs are strictly positive, never taking the value zero, it is further not possible to determine if they are statistically different from zero by examining the respective approximated CI (ibid., pp. 284-286). A commonly accepted solution to this, proposed by Tonidandel et al., involves creating and including a random variable in the model, which is theoretically uncorrelated to the criterion (Tonidandel et al., 2009, pp. 391-392). The RW of each predictor variable included in the model is then pair-wise compared to the random variable. Although the random variable is by definition believed to have a RW of zero, the existence of sampling error will most likely give the random variable a relative RW than zero. Consequently, if the RWs of the predictors are significantly different than that of the random variable, one can reject the null hypothesis that the impact of the predictor variables is not statistically different from zero (ibid.).

It is however important to note that the purpose of the RWA is to enable comparison of the predictor variables and hence concluding on the effect sizes: “A predictor should not be considered “important” on the sole basis of its statistical significance.” (Tonidandel et al., 2009, p. 398). It is rather recommended to do a joint evaluation of the statistical significance together with the magnitude of the RWs (ibid.).

3.4.3 Model validity and methodological issues

The use of the RWA in order to estimate the relationship between employee satisfaction and financial performance is not without potential methodological issues. Such issues are presented and elaborated below.

When performing and evaluating RWA results, it is firstly important to underline that although the RWA is advantageous to methods such as multiple regressions for predictor evaluation purposes when multicollinearity is present, it provides *different* results than the multiple linear regression (Stadler et al., 2017, pp. 387-388). It is hence important not to consider the RWA as a direct replacement to multiple regressions, but as an alternative that allows one to analyse how the predicted model variance is divided among a defined set of predictors (ibid.).

It is also relevant to note that although performing bootstrapping can be used to determine statistical significant pair-wise differences as well as difference from zero, these results should be interpreted with caution (Grömping, 2006, pp. 17-20). Small differences in the magnitude of RWs might be a result of sampling error as well as of observational error, or measurement error, affecting the reliability of the results (Johnson, 2004, p. 284). The bootstrapping quality hence depends on the extent to which the sample is representative for the population (Tonidandel et al., 2009, p. 398). Moreover, since inferences on the population based on bootstrapping resampling include sources of random variations, i.e. the original sample as well as the bootstrap samples being randomly selected, there will always be some uncertainty in terms of variability and accuracy of the bootstrap predictions (Hesterberg et al., 2003, pp. 33-36). Accordingly, number of bootstrap iterations and the sample size will likely have an effect on the quality of the results (ibid.). In this study, the number of bootstrap iterations, or replications, have been chosen to 1000, as suggested in literature (Grömping, 2006, p. 17; Tonidandel et al., 2009, p. 392).

Furthermore, the RWA does not ensure the real *causal relationship* of the specified model (ibid, p. 388). It is commonly suggested in literature that job satisfaction has a positive impact on financial performance (e.g. Melián-González et al., 2015; Ryan et al., 1996). This is assumed in this project as well. Nevertheless, as mentioned in the literature review, evidences of existing reversed causality have been found, such as Schneider et al. who did in fact find financial performance to have a stronger impact on job satisfaction in terms of security, than the other way around (Schneider et al., 2003, pp. 842-846). This possibility of having reversed relationships should hence not be forgotten. Tonidandel et al. also underlined that as in the case of conventional regression methods, not including all relevant predictors in a model might give to misleading results (Tonidandel et al., 2009, p. 398).

Another issue to discuss is the risk of *Type I error*, rejecting the null hypothesis although it is true, since carrying out several pair-wise significance tests typically increases the likelihood of falsely finding too much pair-wise significance (Rice, 1989, p. 223). The significance tests in this paper are not carried out separately but jointly, which creates a Family-Wise Error Rate (FWER) and hence inflation in the alpha-level (ibid.). In order to properly control for the FWER in this paper, the common Bonferroni adjustment method is used, implying that the level of significance for which the pair-wise comparisons are made are adjusted for the number of multiple tests that are carried out simultaneously (Garamszegi, 2006, p. 682). This issue will be further addressed in subchapter 4.1.2 of the empirical analysis.

A further feature of the RWA is that the predictor variables are often *sequentially* added to the model, meaning that the relative importance given to the different predictors partly dependent on the order in which they are added to the model, potentially affecting the model interpretability (Grömping, 2006, pp. 7-12). Advantageously, this can be avoided by applying averaging over the orderings (ibid.). The metric called LMG (after its authors Lindeman, Merenda and Gold) of the R-package relaimpo effectively deals with this problem by using unweighted averages when estimating the RWs. Due to the attractive advantage of dealing with the ordering dependency, the LMG metric is in this paper selected in and used in R when performing the RWA (ibid.).

Lastly, since the RWA does not provide any measure for the absolute importance of a predictor but relative importance compared to some other predictors, it is not possible to directly compare RWs across populations (Johnson, 2004, p. 287). One solution implies a rescaling of the RWs so that they present the proportion of the total variance predicted by the model, that can more accurately be compared between populations (ibid.). A Rescaled Relative Weight (RRW) can hence be calculated by dividing each predictor variable's RW by the total R-squared of the model and multiplying by 100 for a percentage number (ibid.), written as

$$RRW_i = \frac{RW_i}{R^2} \times 100.$$

Since the second part of the analysis includes a comparison across different company groups, calculating and interpreting the RRWs there will be particularly important.

4 Empirical analysis

4.1 The general RWA

This subchapter introduces the procedures and provides the results of the model investigating the general relationship between the job satisfaction indicators and corporate financial performance and will be referred to as “the general RWA”. This part of the analysis hence relates to the research question by focusing on the first hypothesis posed in chapter 2, that there is a positive relationship between employee job satisfaction and financial performance which varies between different facets of job satisfaction.

4.1.1 Model specification of the general RWA

In a first step, the general relation between employee satisfaction and financial performance is modelled in a multiple regression model defined as

$$Perf_{it} = \beta_{1-7} Satisf_{1-7,it} + \beta_8 Size_{it} + \beta_9 Random_{it} + \delta_1 Industry\_dummy + \delta_2 Year\_dummy,$$

where $Perf$ correspond to the two measures of financial performance, $log(Netprofit)$ and $log(Netprofit/Employee)$ for company $i, (i = 1, \dots, 158)$ at time $t, (t = 2014, 2015, 2016)$. $Satisf_{1-7,it}$ stands for the scores of the seven employee satisfaction facets: $Balance,\ Career,\ Conditions,\ Image,\ Pay,\ Relation,\ Sustain$, for company i at time t. The variable $Random_{it}$ represents the randomized variable, taking random valued between 0.0 and 1.0, for company i at time t, created with the purpose of enabling estimation of statistical significance of the satisfaction facets.

The model also includes the variable $Industry\_dummy$ representing the respective industry the firm belongs to. The industry category for manufacturing companies is the excluded reference group. The variable $Size_{it}$ corresponds to the size of each company i at time t, measured as the natural logarithm of the companies’ total assets. $Year\_dummy$ is a dummy variable representing the year of each observation, hence 2014 - 2016, where 2014 is the excluded reference category. The metric LMG in the R-package relaimpo allows one to include predictors that will not receive an RW, and consequently have R–squared broken down and shared among the remaining predictor variables (Grömping, 2006, pp. 15-16). The $Year\_dummy$ is defined as such a variable since it is not meant to compete with the other predictors for the relative importance explained in $Perf$.

Since the criterion is defined in its natural logarithmic form, the assessed linear regression model incorporates nonlinear relationships between the criterion and the set of predictor variables (Wooldridge, 2014, p. 40). By raising both sides of the original model to the power of e, the model can be expressed in its exponential form

$$Perf_{it} = e^{\beta_{1-7} Satisf_{1-7,it} + \beta_8 Size_{it} + \beta_9 Random_{it} + \delta_1 Industry\_dummy + \delta_2 Year\_dummy},$$

in which $Perf$, now measuring $Netprofit$ and $Netprofit/Employee$ in the original unit values, is an exponential function of the set of predictor variables. This illustrates how the original model is defined as a nonlinear relationship and $Perf$ is defined to depend exponentially on each included predictor variable. It gives another insight to the defined criterion-predictor relationship that will be used when assessing the relative importance of the predictor variables – hence the proportion each predictor contributes to the R-squared of the model (Johnson, 2004, p. 284).

4.1.2 Treatment of the multiple comparison problem

Due to the multiple comparisons made in these analyses, the problem of FWER is treated by adjusting the significance level of each comparison according to the Bonferroni method. This method suggest an adjustment of the p-values by multiplying $p \times k$, where p is the p-value and k is the number of comparisons, or statistical tests, performed (Bender & Lange, 2001, pp. 344-345). In this case, the probability of rejecting a posed null-hypothesis when it is actually true decreases and with it the problem of the FWER.

The Bonferroni method can further be applied on CIs directly, by adjusting the significance level by the number of comparisons made (ibid.). Since the RWA does not provide any p-values, the Bonferroni correction of CIs will be used in this paper. The procedure for adjusting the CI can be described as

$$\alpha_k = \alpha / k,$$

where α_k is the level of alpha, adjusted for the FWER by dividing the original level of alpha α by the total number of pair-wise comparisons, k (ibid). Table 5 illustrates the adjustments made in this paper according to the Bonferroni method, where α_k is the actual level of significance used in the analyses. In this paper, the 95% level has been chosen as wished significance level to investigate. Consequently, Bonferroni corrections associated with the 95% level are performed for each model.

Model	Nr. predictor variables (x)	Nr. pair-wise comparisons (k)	Original level of significance $(1 - \alpha)$	Adjusted level of significance $(1 - \alpha_k)$
General RWA	10	45	95%	99.88%

Table 5: Bonferroni-adjusted levels of significance for the general RWA
Source: author's own table based on Bender and Lange, 2001, pp. 344-345

As seen in table 5, the correction for multiple comparison has a notable impact on the adjusted significance level, which will be applied in the bootstrapping procedure used to determine on the significant pair-wise differences in RWs between the predictors. To clarify, in order to avoid inflation in statistical significances due to the FWER, the adjusted significance level of 99.88% presented in the rightmost column in table 5 above will replace the original 95% level when performing the general RWA model.

4.1.3 General RWA results

The RWA results from the models investigating the general satisfaction-performance relationship, are presented in this subchapter. The results will be interpreted in three steps. Firstly, the predictor variables' relative importance and the overall explanatory power of the models with the two different criterion will be addressed. Thereafter, the extent to which the predictors' relative importance differ from each other will be touched upon. Lastly, the statistical significance of the RWs will be assessed.

Table 5 presents an overview of the results from the general RWA model. The asterisks indicate a statistical significance at the 99.88% level (the Bonferroni-adjusted 95% level). The values under the headline RW are the original relative weights retrieved in R. The values under RRW are the calculated rescaled relative weights.

Relative Weights				
Dependent	log(Netprofit)		log(Netprofit/Employee)	
	RW	**RRW**	**RW**	**RRW**
Balance	0.0049	0.86%	0.0056	1.63%
Career	0.0057	1.00%	0.0054	1.57%
Conditions	0.0083	1.46%	0.0108	3.15%
Image	0.0029	0.51%	0.0024	0.70%
Pay	0.0278 *	4.88%	0.0275	8.02%
Relation	0.0114	2.00%	0.0054	1.57%
Sustain	0.0217	3.81%	0.0160	4.66%
Industry_dummy	0.0561 *	9.85%	0.0682 *	19.88%
Size	0.4301 *	75.51%	0.2013 *	58.67%
Random	0.0007	0.12%	0.0006	0.17%
Year_dummy	Yes		Yes	
R2	0.5696		0.3431	
N	474		437	

* Significance at the 99.88% level

Table 6: Relative contributions of employee satisfaction for both criteria
Source: author's own table based on the RWA results

The left part of table 5 presents the results for the model with net profit as criterion. In this the model, R-squared measures 0.5696, implying that 56.96% of the variation in net profit can be explained by the variation in the employee job satisfaction facets, company industry belonging, company size together with a small adjustment for the random variable. The RWs reveal that the variables accounting for the most predicted variance in the model with net profit as criterion are $Size$ (0.4301), followed by $Industry\_dummy$ (0.0561), Pay (0.0278), $Sustain$ (0.0217) and $Relation$ (0.0114). In terms of RRWs, this implies that most of the proportion of variance explained in the criterion is distributed among the predictor variable accordingly: $Size$ (75.51%), $Industry\_dummy$ (9.85%), Pay (4.88%), $Sustain$ (3.81%), $Relation$ (2.00%).

Regarding the RWs for the satisfaction facets, satisfaction with payment followed by sustainability thus seem to be the facets with highest relative importance for net profit in the defined model. By aggregating the RWs respectively RRWs over the seven facets, one can see that the sum of the seven satisfaction facets' RWs measure 0.0827, corresponding to a RRW of 14.52%, hence the proportion of the total explanatory power of the model associated with employee job satisfaction.

The $Industry\_dummy$ has a slightly higher RW than each single job satisfaction facet, indicating a higher relative importance for net profit than the single employee satisfaction facets, in this specified model. It is further clear that $Size$ has a notably larger RW than the remaining predictors. The RRW shows that company size alone accounts for about 76% of the explained variance in the R-squared, hence more than the industry belonging and the considered employee satisfaction facets together. Since larger companies can generally also be expected to make larger profits in absolute numbers, this a high importance of company size seems logical.

The right part of table 5 above presents the results of the model with net profit per employee as criterion. In this model, R-squared measures 0.3431. Accordingly, 34.31% of the variation in net profit per employee can be explained by this model. Considering the RWs, $Size$ (0.2013) followed by $Industry\_dummy$ (0.0682), Pay (0.0275), $Sustain$ (0.0160) and $Conditions$ (0.0108) account for the most explained variance in net profit per employee. The proportion of variance explained by these facets is distributed as followed: $Size$ (58.67%), $Industry\_dummy$ (19.88%), Pay (8.02%) $Sustain$ (4.66%) and $Conditions$ (3.15%). The proportionate distribution is similar to the one of net profit, but with lower relative importance of $Size$ and accordingly larger proportion of R-squared contributed to by $Industry\_dummy$ as well as the employee satisfaction facets Pay, $Sustain$ and $Conditions$. One potential reason for this discrepancy could be that adjusting for the number of employees is also a proxy for company size (Dang et al., 2018, p. 160), hence to some extent already accounted for in the second model.

Also in the case of net profit per employee as criterion, satisfaction with payment followed by sustainability are found to be the employee satisfaction facets of highest relative importance. The aggregated RW of all considered satisfaction facets add up to 0.0731. The aggregated RRW of the facets add up to 21.31%, implying that 21.31% of the explained variance in net profit per employee can be referred to the variance in the seven employee satisfaction facets in this model. This aggregated RRW is around seven percent points larger than in the case of net profit. This difference could possibly be referred to the lower proportion of relative contribution associated with the variable company size in the case of net profit per employee, accompanied by the almost proportionate decrease in R-squared as compared to the model with net profit.

By summarizing the first step in the analysis, one can see that employee satisfaction measured as the seven facets seems to have a certain impact on the variation in corporate financial performance measured as net profit and net profit per employee in the defined model. For both criterion, satisfaction with payment followed by sustainability are the two facets with highest relative importance. Nevertheless, the industry belonging as well as company size are of higher relative importance.

In the second step, the extent to which the job satisfaction facets differ from each other is investigated more closely. The result from the bootstrapping procedure for net profit as criterion are presented in table 7.

Relative contributions with confidence intervals

Dependent: log(Netprofit)			Lower	Upper
	Percentage	0.9988	0.9988	0.9988
Balance	0.0049	___DEFGHIJ	0.0024	0.0207
Career	0.0057	____EFGHIJ	0.0022	0.0169
Conditions	0.0083	__CDEFGHIJ	0.0025	0.0303
Image	0.0029	__CDEFGHIJ	0.0012	0.0290
Pay	0.0278	_BCDEFG___	0.0091	0.0631
Relation	0.0114	_BCDEFGHIJ	0.0033	0.0418
Sustain	0.0217	_BCDEFGH__	0.0066	0.0517
Industry_dummy	0.0561	_BC_____	0.0323	0.1130
Size	0.4301	A_____	0.2640	0.5320
Random	0.0007	____EFGHIJ	0.0001	0.0158

Confidence interval information (1000 bootstrap replicates, bty= perc)

Table 7: Relative weights with bootstrapped CIs – criterion net profit
Source: author's own table based on the RWA results

The two rightmost columns in table 6 above present each predictor variable's CI, estimated through the bootstrapping procedure. The middle column with letters shows the position of each variable's CI relative to each other. The leftmost column shows the RWs identical to those in table 5. In order to enhance the interpretability of the content in the tables, they are illustrated in figure 8.

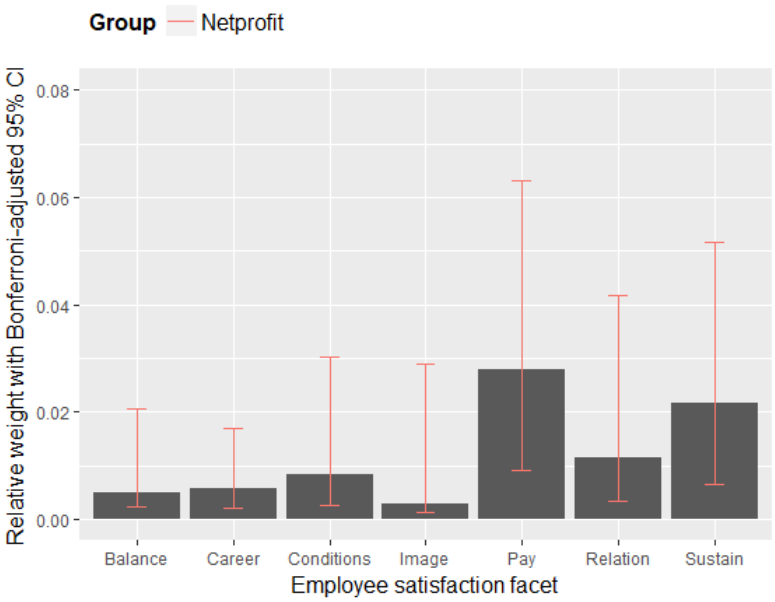


Figure 8: Relative weights with bootstrapped CIs – criterion net profit
Source: author's own figure based on the RWA results, made in R

The bars in the figure above represent the RWs of each job satisfaction facet for the criterion net profit. The red lines represent each facet's CI as in table 6 above. To enhance the focus on the job satisfaction facets and hence the research problem, the remaining predictors were excluded from the figure. The figure visualizes the higher relative importance of Pay followed by $Sustain$ for net profit as criterion, as earlier described. The size of the CIs also indicate the preciseness of the RW estimates (Johnson, 2004, p. 284). The relatively wide CIs can arguably be referred to the Bonferroni-adjustments of the CIs (Bender & Lange, 2001, pp. 344-345) but might also be a result of the sample size and high data variability (Hesterberg et al., 2003, pp. 33-36). In this case, the CIs thus indicate that it is problematic to draw exact conclusions as to the RWs real magnitudes and differences.

Figure 8 further shows a high degree of overlapping of the CIs. As mentioned in chapter 3.4.2, pair-wise comparisons of each predictor variable's RW and the respective CIs have been carried out, measuring the degree to which each pair of predictors' CIs overlap at the given level of significance. The detailed results of the pair-wise comparisons are presented in appendix VI. According to these, none of the facets differ significantly from each other at the 99.88% level (the Bonferroni-adjusted 95% level). However, $Size$ differ significantly from all other predictors and $Industry\_dummy$ differ significantly from all predictors except for Pay, $Relation$ and $Sustain$.

The following table 7 and figure 9 show the corresponding bootstrapped results for the criterion net profit per employee.

Relative contributions with confidence intervas

Dependent: log(Netprofit/Employee)			Lower	Upper
	Percentage	0.9988	0.9988	0.9988
Balance	0.0056	__CDEFGHIJ	0.0017	0.0339
Career	0.0054	__CDEFGHIJ	0.0017	0.0219
Conditions	0.0108	__CDEFGHIJ	0.0019	0.0389
Image	0.0024	__CDEFGHIJ	0.0010	0.0184
Pay	0.0275	_BCDEFGH__	0.0036	0.0789
Relation	0.0054	__CDEFGHIJ	0.0018	0.0279
Sustain	0.0160	__CDEFGH__	0.0032	0.0586
Industry_dummy	0.0682	ABC_____	0.0416	0.1487
Size	0.2013	AB_____	0.1197	0.2991
Random	0.0006	__CDEFGHIJ	0.0000	0.0317

Confidence interval information (1000 bootstrap replicates, bty= perc)

Table 8: Relative weights with bootstrapped CIs – criterion net profit per employee
Source: author's own table based on the RWA results

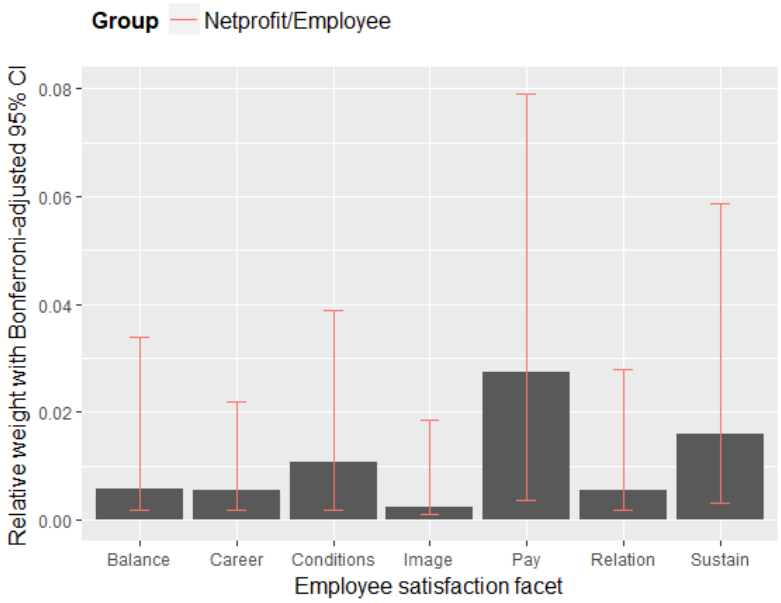


Figure 9: Relative weights with bootstrapped CIs – criterion net profit per employee
Source: author's own figure based on the RWA results, made in R

As seen in the table figure 9 above, the CIs are wide also in the model with net profit per employee as criterion. In fact, the CIs for the facets with highest relative importance, Pay and $Sustain$, are even wider than in the case of net profit, suggesting even less precise estimates. Accordingly, the pair-wise comparisons among the satisfaction facets showed no statistical significance at the 99.88% level (the Bonferroni-adjusted 95% level), as seen in appendix VI.

Summarizing the second step of the analysis, the RW estimates of both models are somewhat unprecise. The relatively high degree of overlapping between the different variables' CIs implies that no job satisfaction facet is to consider significantly different from each other at the 99.88% level. With respect to the high amount of satisfaction facet correlations found in chapter 3.3.3, this is not surprising.

In the third step, statistical significance of the job satisfaction facets is tested. As explained in chapter 3.4.2, this assessment is based on the pair-wise variable comparisons above, but compares the CI of each predictor variable to the one of the randomized variable. Figure 10 illustrates the test of statistical significance for the model with net profit as criterion.

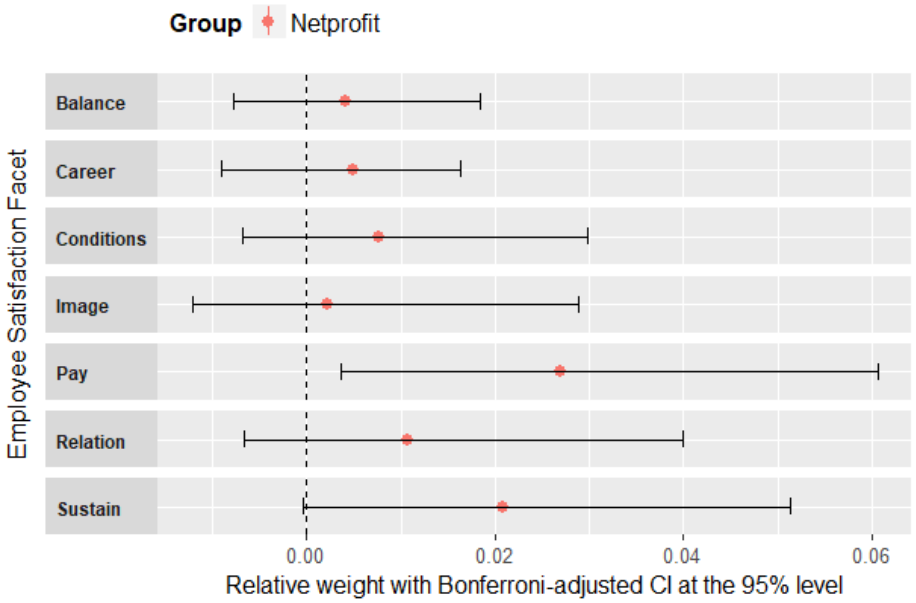


Figure 10: Bootstrap test of statistical significance – criterion net profit
Source: author's own figure based on the RWA results, made in R

The red points represent new RWs of each facet, which correspond to the original RW subtracted by the RW of the variable $Random$. The black lines represent the corresponding estimated CIs. If the CI does not cross the zero line, the variable is considered statistically significant at the 99.88% level. In the case of net profit, Pay is found significantly different from zero. Moreover, the CI of $Sustain$ just slightly crosses the zero line and is thus considered insignificant. The rest of the facets all cross the zero line with a larger margin. The complete result in appendix VI show that both $Size$ and $Industry\_dummy$ are significantly different from zero for net profit as criterion, giving further support to their higher importance for the criterion as compared to the satisfaction facets measured.

Figure 11 below shows the corresponding test of statistical significance for the criterion net profit per employee.

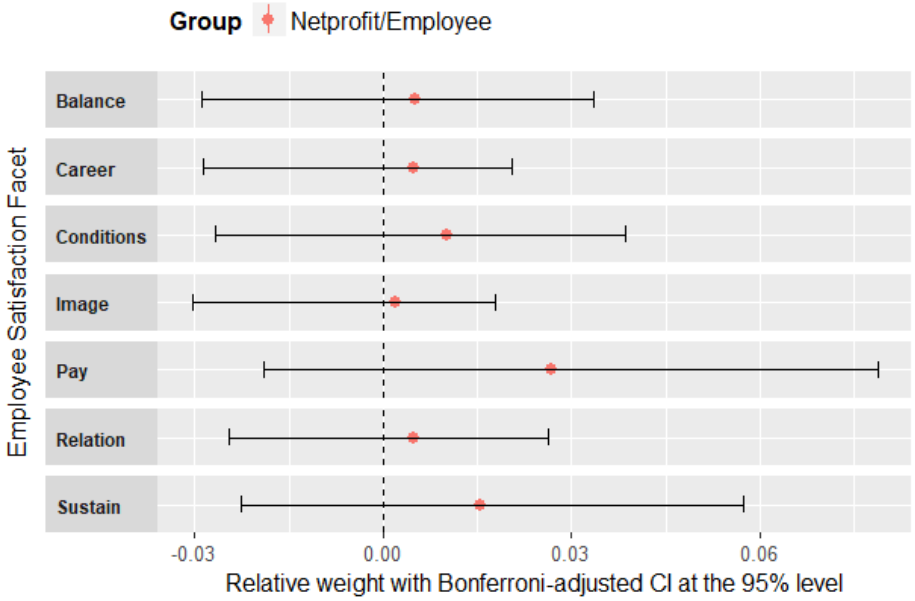


Figure 11: Bootstrap test of statistical significance – criterion net profit per employee
Source: author's own figure based on the RWA results, made in R

From figure 11, one can see that the CIs of all variables cross the zero line. Consequently, none of the facets are considered statistically significant at the 99.88% level in the case of net profit per employee as criterion. Also in this case, both $Size$ and $Industry\_dummy$ are found statistically significant, as shown in appendix VI.

On the whole, statistical significance at the 99.88% level is only found for the variable Pay in the case of net profit as criterion. It is worth to once again mention that the testing for statistical significance should be interpreted with caution due to the fact that it is based on the bootstrapping procedure (Grömping, 2006, pp. 17-20), as well as a random variable which due to sampling error might be more or less related to the criterion (Tonidandel et al., 2009, p. 391).

By summarizing the steps of the general RWA, they indicate that some relation between corporate financial performance and different satisfaction facets exist. An evaluation of magnitudes and statistical significance show that satisfaction with payment followed by sustainability stand out from the rest as more related to corporate financial performance in this model. Company size proves to be the factor most strongly related to financial performance in this analysis, but relatively less important in the case of net profit per employee, followed by industry belonging. The relative importance of the job satisfaction facets seem relatively constant in both models.

Overall, the results are to consider enough to confirm the first hypothesis related to the research question: The analysis indicates that a general satisfaction-performance relationship for the considered variables does to some extent exist, which differs between the different considered satisfaction facets. It should however be underlined that the wide bootstrapped CIs found in the models might not only influence the degree to which statistical significance is found, but also the degree to which correct and general conclusions can be drawn from the results.

4.2 The quartile RWA

The following subchapter presents the second part of the analysis, in which the original sample of companies is divided into different groups depending on the companies' overall satisfaction scores. This will be referred to as "the quartile RWA". The aim of this part of the analysis is to detect potential differences in the strength of the satisfaction-performance relationship at different levels of employee job satisfaction, in line with the second posed hypothesis posed in chapter 2.

4.2.1 Criteria for the quartile analysis

In a first step, criteria for splitting the original sample into groups need to be defined. In this paper, a measure for average general satisfaction is used as splitting criteria. Accordingly, another dimension in the data is created, that allows assessment of how the explanatory power of the model as well as the relative importance of the different predictors differ between company groups with different levels of overall job satisfaction scores.

Although single-item measures of job satisfaction alone are often considered insufficient when studying employee satisfaction and its effect on other variables of interest (Wanous et al., 1997, p. 247), they enable categorization of companies based on general satisfaction level in this study. Overall satisfaction has historically often been calculated as a linear combination of the satisfaction facets measured (Locke, 1969, p. 330).

Another way of segmenting multidimensional data is to use a clustering technique, which delivers illustrative results and enables visualization of hidden data patterns (Sambandam, 2003, pp. 16-17). Nevertheless, multicollinearity among the variables problematizes the use of clustering in the case of categorizing companies based on

different job satisfaction facets. Similar to the problem in multiple regression, high correlation between the variables in cluster analysis is likely to affect the weights given to each variable, potentially creating inaccurate and misleading results (ibid.).

With respect to these strengths and weaknesses of the segmenting techniques, segmentation is in this paper based on an average satisfaction score, calculated as a linear combination of each company's seven facets scores over the three time periods. Firstly, an annual average satisfaction score $\bar{x}_{it}$ is calculated by summing the seven satisfaction facets $x_{1it}, x_{2it}, \ldots, x_{7it}$ for company i at time t,

$$\bar{x}_{it} = \frac{(x_{1it} + x_{2it} + x_{3it} + x_{4it} + x_{5it} + x_{6it} + x_{7it})}{7}.$$

Secondly, a final average satisfaction score $\bar{x}_i$ is calculated as the sum of the company's annual average scores divided by the number of time periods included

$$\bar{x}_i = \frac{\sum(\bar{x}_{it})}{\sum(t)}.$$

The resulting score will take a number between 1.0 and 5.0, where 1.0 indicates the lowest possible overall satisfaction and 5.0 the highest possible overall satisfaction. Based on the overall satisfaction scores $\bar{x}_i$, the original sample of companies is divided into four quartiles from Q1, containing the companies with the 25% lowest overall satisfaction scores to Q4, containing those with the 25% highest scores. By creating and basing the sample split on the $\bar{x}_i$, it is made sure that a company's observations for all three time periods are assigned to the same quartile. The characteristics of the resulting quartile distribution of companies is presented in table 10 below.

Overall satisfaction quartile	*N*	*Mean*	*Median*	*Min*	*Max*
Q1	123	3.15	3.18	2.70	3.39
Q2	114	3.52	3.52	3.41	3.63
Q3	120	3.76	3.77	3.63	3.91
Q4	117	4.06	4.06	3.92	4.47

Table 9: Descriptive statistics – overall satisfaction in quartiles
Source: author's own table

Table 10 presents the summary statistics on the overall satisfaction distribution for the observations in the four different quartiles of companies. The mean as well as minimum and maximum values increase with the quartiles, which illustrating the differences between the four groups in terms of overall satisfaction levels. The slight differences in sample sizes between the quartiles refer to the fact that each company has three observations, which are all assigned to the same quartile.

The graphs below illustrate the correlation between overall satisfaction and the two variables for corporate financial performance with the x-axis mean, minimum and maximum values of each quartile group corresponding to the table above. Each company is represented with one point in the graphs. The two graphs indicate a wide spread in corporate financial performance for all groups. Nevertheless, a slight positive trend, visualized by the best fitted trend lines, indicate a possibly existing relationship between increasing overall employee satisfaction and increasing net profit.

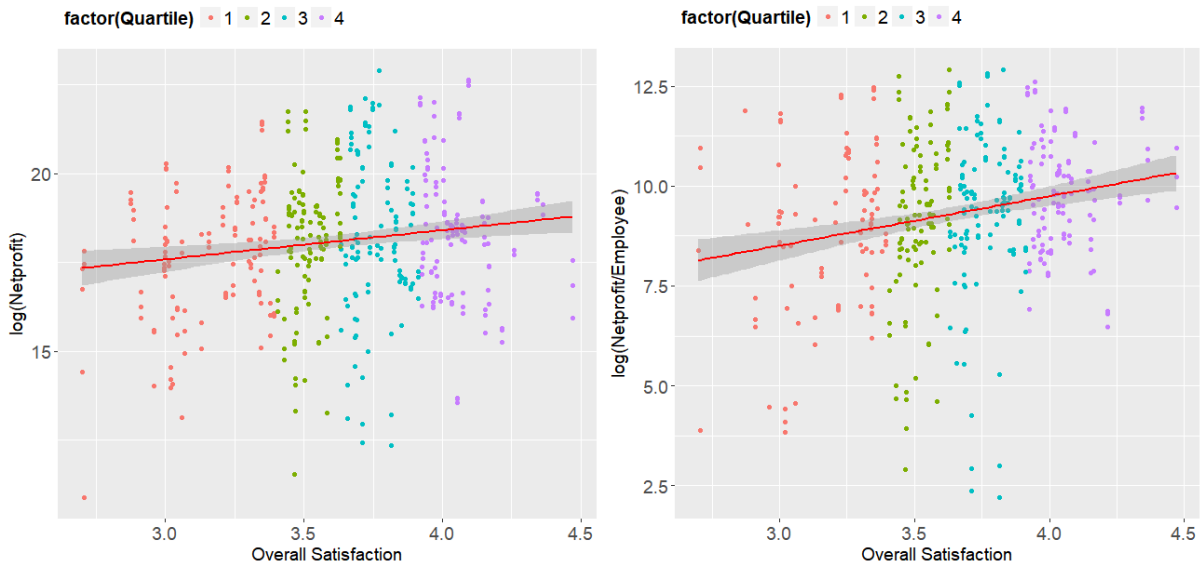


Figure 12: Overall employee satisfaction-performance correlations
Source: author's own figure, made in R

4.2.2 Model specification of the quartile RWA

Finally, the RWA was performed on each satisfaction quartile separately as well as in pairs, [Q1 & Q2] and [Q3 & Q4], in order to analyse if there is any difference between the companies with the 50% lowest satisfaction scores – group [Q1 & Q2], and those with the 50% highest satisfaction scores – group [Q3 & Q4]. This also enables more close comparisons with existing literature on the topic, which mostly focuses on two group comparisons (e.g. Fulmer et al., 2003). The formula used to analyse the four quartiles of data is defined as

$$Perf_{iQt} = \beta_{1-7} Satisf_{1-7,iQt} + \beta_8 Size_{iQt} + \beta_9 Random_{iQt} + \delta_1 Year\_dummy,$$

where $Perf_{iQt}$ represents financial performance measures as $\log(Netprofit)$ and $log(Netprofit/Employee)$ for company $i, (i = 1, \dots 158)$ in the overall job satisfaction quartile $Q, (Q = 1, .., 4)$ at time $t, (t = 2014, 2015, 2016)$. $Size_{iQt}$ represents the company size and $Random_{iQt}$ is a variable taking random values between 0.0 and 1.0. Lastly, $Year\_dummy$ represents the time period of each data point with the first time period, 2014, being the excluded reference year.

The model is almost identical to the model in the general part of the analysis. One exception is that the variable $Industry\_dummy$ is excluded. Including the industry dummy in the bootstrapping produced error messages that indicated problems with linear dependency in the model. By experimentally reducing the number of bootstrap replications to very small numbers, the bootstrapping could be performed without any issues. Since $Industry\_dummy$ is a categorical variable with several levels treated binary, the risk of drawing resamples in a smaller sample which all observations taking identical values, the value zero, could reasonably increase. This would by definition create linear dependency in the model (Wooldridge, 2014, p. 72).

Since the number of accepted replications were in some cases as small as ten or less, it is questionable whether such small amounts of bootstrap replications generate adequate sample distributions. It was consequently decided to drop the variable from the quartile RWA. Nevertheless, since the RWs are not affected by the bootstrapping, separate quartile RWAs including the industry variable were computed and can be found in appendix X. Despite not allowing assessment of the variability or statistical significance, they provide some information about differences in magnitudes. The RWs of the industry dummy are also presented separately in the result tables 11 and 12.

As in the general RWA results, the quartile RWA analyses' significance levels are adjusted according to the Bonferroni method. Due to the exclusion of the industry variable, the number of predictor variables are 9 and the multiple comparisons made in the quartile RWA analyses mount up to 36 pair-wise comparisons. The level of significance is therefore determined to 99.86% for the Bonferroni-adjusted 95%, as seen in table 10.

Model	Nr. predictor variables (x)	Nr. pair-wise comparisons (k)	Original level of significance $(1 - \alpha)$	Adjusted level of significance $(1 - \alpha_k)$
Quartile RWA	9	36	95%	99.86%

Table 10: Bonferroni-adjusted levels of significance for the quartile RWA
Source: author's own table based on Bender and Lange, 2001, pp. 344-345

4.2.3 Quartile RWA results

The following part of the chapter summarizes the results from the four group quartile RWA analyses as well as the two group analysis with combinations of the quartiles. As in the presentation of the general RWA results in chapter 4.1.3, the results from the quartile RWA will be presented in three steps. The RWs are presented in step one, the differences between the RWs in step two and the assessment of statistical significance in step three.

Table 11 shows the results from the quartile analyses for net profit as measure of financial performance. The left columns show the RWs and RRWs from the two group analysis, representing the companies with the 50% less satisfied employees and the 50% more satisfied. Thereafter, the split analysis is presented with detailed results for each quartile from the least satisfied 25% to the most satisfied 25%.

Relative Weights

Dependent	log(Netprofit)											
Quartile	Q1&Q2		Q3&Q4		Q1		Q2		Q3		Q4	
	RW	**RRW**	**RW**	**RRW**	**RW**	**RRW**	**RW**	**RRW**	**RW**	**RRW**	**RW**	**RWW**
Balance	0.0115	2.48%	0.0264	3.99%	0.0459	10.98%	0.0067	1.13%	0.0283	4.30%	0.0236	3.24%
Career	0.0074	1.60%	0.0132	2.00%	0.009	2.15%	0.0131	2.21%	0.0146	2.22%	0.0238	3.27%
Conditions	0.0176	3.80%	0.0051	0.77%	0.0088	2.10%	0.034	5.73%	0.0054	0.82%	0.0067	0.92%
Image	0.0079	1.71%	0.0062	0.94%	0.0216	5.16%	0.0053	0.89%	0.0129	1.96%	0.008	1.10%
Pay	0.0221	4.77%	0.0675 *	10.21%	0.0183	4.38%	0.0217	3.66%	0.062	9.42%	0.0528	7.25%
Relation	0.0053	1.14%	0.0397	6.01%	0.0072	1.72%	0.0119	2.01%	0.0528	8.02%	0.0378	5.19%
Sustain	0.0522	11.27%	0.0136	2.06%	0.0352	8.42%	0.0813	13.71%	0.0243	3.69%	0.0052	0.71%
Size	0.3363 *	72.59%	0.4891 *	73.98%	0.2565 *	61.33%	0.4186 *	70.59%	0.4548 *	69.11%	0.569 *	78.11%
Random	0.003	0.65%	0.0003	0.05%	0.0156	3.73%	0.0004	0.07%	0.0029	0.44%	0.0016	0.22%
Year_dummy	Yes		Yes		Yes		Yes		Yes		Yes	
R2	0.4633		0.6611		0.4182		0.5930		0.6581		0.7285	
n	237		237		123		114		120		117	
Industry_dummy[a]	*0.0789*		*0.0563*		*0.0928*		*0.1601*		*0.1378*		*0.0923*	

* significance at the 99.86% level

a: The variable is estimated separately, no assessment of statistical significance is made

Table 11: Quartile relative contributions of employee satisfaction – criterion net profit

Source: author's own table based on the RWA results

Looking at different quartile groups, R-squared increases with each quartile, from 0.4182 for the companies having the 25% lowest satisfaction scores (Q1), to 0.7285 for the companies with the 25% most satisfied employees (Q4). This is also seen by looking at the two group case, where the R-squared for the 50% least satisfied employees, group [Q1 & Q2], measure 0.4633 as compared to the 0.6611 of the 50% most satisfied, group [Q3 & Q4]. This indicate a higher explanatory power of the model in the groups with higher general employee satisfaction scores.

In consistency with the results from the general RWA models, $Size$ appears to be the included predictor variable with highest relative importance for net profit as criterion. The proportion of R-squared referable to the variable for company size (RRW) varies between 61.33% in Q1 and 78.11% in Q4. It is relatively stable in the two group case, measuring 72.59% in group [Q1 & Q2], and 73.98% in group [Q3 & Q4]. The predictor $Industry\_dummy$, estimated separately, show similar RWs as in the general model, with small differences between the quartile groups. Since $Industry\_dummy$ is estimated separately from the rest of the predictors, further no assessment of the variable is made.

By aggregated the RRWs for the seven satisfaction facets, an indication of how the total relative importance of the considered job satisfaction facets differ in the different groups of firms is provided. The aggregated satisfaction facet RRWs for group [Q1 & Q2] and group [Q3 & Q4] measure 26.76% and 25.97% respectively, indicating an even proportionate relative importance of the measured facets of employee satisfaction to the variance explained in net profit, for both companies with higher and lower employee satisfaction levels. Looking at the single quartiles, the aggregated RRW measures 34.91% in Q1 and 21.67% in Q4, indicating that the proportion of variance explained in the model referable to the set of seven job satisfaction facets is higher for the companies with the 25% least satisfied employees. More diversified differences can, however, be seen when considering the single job satisfaction facets separately.

The facet Pay, which was consistently the most important facet in the general RWA model is now only of highest relative importance in Q3 and Q4, hence the companies with highest average employee satisfaction scores. The trend is most strongly seen in the two group case, where the RW of Pay measures 0.0221 in group [Q1 & Q2] and 0.0675 in group [Q3 & Q4]. In terms of RRW, this corresponds to 4.77% and 10.21%

proportion of variance explained associated with satisfaction with payment. Also $Relation$ is of higher relative importance in firms with generally higher satisfaction scores, with RW and RRW increasing from 0.0053 and 1.14% in group [Q1 & Q2] to 0.0397 and 6.01% in group [Q3 & Q4]. Reversely, $Sustain$ is of higher relative importance in companies with lower satisfaction scores on average. In group [Q1 & Q2], $Sustain$ has an RW of 0.0522 and an RRW of 11.27%, whilst the values in group [Q3 & Q4] measure 0.0136 and 2.06%. The same trend is seen in the single quartiles, where the RRW measures 8.42% in Q1 and 0.71% in Q4.

Table 12 shows the results from the quartile RWA with net profit per employee as measure of financial performance.

Relative Weights												
Dependent:	log(Netprofit/Employee)											
Quartile	Q1&Q2		Q3&Q4		Q1		Q2		Q3		Q4	
	RW	**RRW**	**RW**	**RRW**	**RW**	**RRW**	**RW**	**RRW**	**RW**	**RRW**	**RW**	**RWW**
Balance	0.0151	4.67%	0.0128	3.68%	0.0539	13.85%	0.0047	1.00%	0.0062	1.44%	0.0605	15.18%
Career	0.0123	3.81%	0.0043	1.24%	0.0073	1.88%	0.0428	9.10%	0.0075	1.74%	0.011	2.76%
Conditions	0.0124	3.84%	0.0095	2.73%	0.0042	1.08%	0.0414	8.80%	0.0049	1.14%	0.0176	4.42%
Image	0.0021	0.65%	0.0029	0.83%	0.0155	3.98%	0.0202	4.29%	0.0131	3.05%	0.0028	0.70%
Pay	0.0167	5.17%	0.0708	20.34%	0.0167	4.29%	0.0206	4.38%	0.0815	18.95%	0.0198	4.97%
Relation	0.0048	1.49%	0.0114	3.28%	0.0112	2.88%	0.0264	5.61%	0.033	7.67%	0.0138	3.46%
Sustain	0.0246	7.62%	0.0142	4.08%	0.0055	1.41%	0.1115	23.70%	0.0076	1.77%	0.0064	1.61%
Size	0.2264 *	70.09%	0.2202 *	63.28%	0.2477 *	63.66%	0.202 *	42.94%	0.274 *	63.72%	0.2424 *	60.81%
Random	0.0085	2.63%	0.0021	0.60%	0.0272	6.99%	0.0007	0.15%	0.0021	0.49%	0.0243	6.10%
Year_dummy	Yes		Yes		Yes		Yes		Yes		Yes	
R2	0.3230		0.3480		0.3891		0.4704		0.4300		0.3986	
n	203		234		93		110		118		116	
Industry_dummy [a]	*0.1103*		*0.0589*		*0.1187*		*0.195*		*0.1652*		*0.0537*	

* significance at the 99.86% level

a: The variable is estimated separately, no assessment of statistical significance is made

Table 12: Quartile relative contributions of employee satisfaction – criterion net profit per employee

Source: author's own table based on the RWA results

As in the general RWA analysis, the explanatory power of the models with net profit per employee as criterion is throughout the different quartiles somewhat lower compared to the models with net profit. Moreover, the changes in R-squared do not follow the same pattern as in the case of net profit. The smallest R-squared (0.3891) is measured in the Q1 and the highest (0.4704) in Q2. In the two group case, the explanatory power of the models are not very different from each other.

It can further be noted that the variable $Size$ has a major impact on the overall explanatory power in all groups, also in the case of net profit per employee as criterion. Its RWs are, however, relatively constant between the different quartiles, all taking values between 0.202 and 0.274, in contrast to the case of net profit where R-squared was in general higher and increased with increasing levels of employee satisfaction. In terms of RRWs, the proportion of variance explained referable to the variable for company size is 70.09% in group [Q1 & Q2] and 63.28% in group [Q3 & Q4].

The aggregated RRWs for the seven satisfaction facets for the models with net profit per employee as criterion show that the percentage influence on the variance explained by the model equals 27.24% in group [Q1 & Q2] and 36.18% in group [Q3 & Q4]. The same trend but somewhat smaller is seen by looking at Q1 and Q4, where the RRWs measure 29.38% and 33.09% respectively. This would imply that in the case of net profit per employee as criterion, the proportion of relative importance explained in in the criterion referable to the set of job satisfaction facets included is slightly higher among the companies which have higher levels of satisfaction in the work force.

Looking at the job satisfaction facets, similar trends as for net profit as criterion can be noted. The facet Pay is also here the facet with highest relative importance in the companies with the highest average employee satisfaction scores. In the two group case, the RW measures 0.0167 in group [Q1 & Q2] and 0.0708 in group [Q3 & Q4]. In terms of proportion of variance explained (RRW), this corresponds to 5.17% respectively 20.34% associated with satisfaction with payment. Also as for the former criterion, $Sustain$ is of higher relative importance in companies with lower satisfaction scores on average. The difference is smaller however. In group [Q1 & Q2] it has an RW of 0.0246 and an RRW of 7.62%, whilst the values in group [Q3 & Q4] indicate an RW of 0.0142 and an RRW of 4.08%. The largest relative importance of sustainability is seen in Q2, where the RRW measures 23.70%. Sustainability is consequently the facet of highest relative importance among the firms with lower satisfaction scores.

Summarizing the first step of the split RWA analysis, satisfaction with payment is the facet found to be of higher relative importance for financial performance in companies where job satisfaction is already higher. Reversely, sustainability seems to be of higher relative importance in companies where employees are generally less satisfied. Furthermore, generally higher RRWs are found among the satisfaction facets in the quartile RWA models compared to those in the general RWA models.

Below follows the second step of the split RWA analysis, in which the difference in RW sizes are assessed. Figure 11 presents the RWs and CIs for the models with net profit as criterion. To more clearly being able to visualize the results, the two group case will be in focus. Due to the large number of single analyses made, the corresponding tables with CIs can be found in appendix VII, for the two as well as four group case.

Figure 13: Grouped relative weights with bootstrapped CIs - criterion net profit
Source: author's own figure based on the RWA results, made in R

As described in step one of the analysis, the relative importance of the facets Pay, $Sustain$ and $Relation$ do differ between the two groups of less, respectively more satisfied employees. Compared to the general RWA results, the CIs are even wider in the quartile RWA results. This could arguably be referred to the decrease in sample size as the sample was split into quartiles. It is also notable that with the higher RWs of the three rightmost facets in the figure comes higher CIs and hence less precise RW estimates. Nevertheless, the pair-wise comparisons of the CIs presented in appendix VIII do show that in group two, the facet Pay is significantly larger than the facets $Image$ and $Conditions$ at the 99.86% level (the Bonferroni-adjusted 95% level). Also $Size$ is significantly larger than all the satisfaction facets at the given level of significance.

Figure 12 illustrates the same information but in the case of net profit per employee as criterion.

Figure 14: Grouped relative weights with bootstrapped CIs - criterion net profit per employee
Source: author's own figure based on the RWA results, made in R

Figure 13 visualizes the fact that the majority of satisfaction facets are of low relative importance, with only small differences between the two groups. One exception is Pay which is of higher relative importance among the companies with the 50% higher employee satisfaction scores. The CI of Pay is larger than in the case of net profit and its RW is hence also less precise, as in the general RWA models. In this case, the pair-wise comparisons in appendix IX show no statistically significant difference between the facets. The facet *Size* is however still significantly larger than all of the facets in all groups.

The second step of the split RWA analysis has thus showed that the smaller sample sizes applied also implies wider CIs and less precise estimates in several cases. Nevertheless, the RW of Pay is found significantly larger than some of the other facets.

The third step of the analysis assesses the statistical significance of the job satisfaction facets in the different groups of companies considered. As in the earlier analysis, this is done by considering the pair-wise comparison between each facet and the random variable. Figure 12 below illustrates the test of statistical significance for the seven satisfaction facets in the two group case for net profit as criterion.

Figure 15: Grouped test of statistical significance – criterion net profit
Source: Author's own figure based on the RWA results, made in R

Figure 12 visualizes that only Pay has a CI that to a large enough extent does not overlap with the random variable and is hence to consider significant at the 99.86% level in group [Q3 & Q4]. In the case of $Sustain$, the RW in group [Q1 & Q2] approaches the one of Pay in group [Q3 & Q4] but cannot be consider statistically significant at the given level of significance. As in the other cases, the estimations of statistical significance should be considered approximate.

Figure 14 below illustrates the test of statistical significance in the models with net profit per employee as dependent variable. The figure reveals that no facet differs enough from the random variable to be considered significantly different from zero at the 99.86% level. It is however notable that the facet Pay in group [Q3 & Q4] is the facet which differs the most from zero, despite its wide CI.

Figure 16: Grouped test of statistical significance – criterion net profit per employee
Source: author's own figure based on the RWA results, made in R

All in all, the quartile RWA models indicate some differences in relative importance of different job satisfaction facets in the different groups considered as well as between the two measures of financial performance. In the group of companies with the 50% higher employee satisfaction scores, satisfaction with payment is of higher relative importance and is statistically significant at the 99.86% level. Among the companies with the 50% lower employee satisfaction scores, sustainability is of highest relative importance, especially in the case of net profit as criterion. However, no statistical significance is found for any of the satisfaction facets in either the two nor in the four group case.

With respect to the second posed hypothesis, that the strength of the satisfaction-performance relationship is of higher relative importance in companies that have generally more satisfied employees, the results are ambiguous. However, differences between the different groups can be found, supporting the idea that the strength and the characteristics of the satisfaction-performance relationship differs with different levels of employee satisfaction. The possibility to draw general conclusions from the results are further to consider limited due to the large spread indicated by the wide CIs in the model.

4.3 Discussion of the empirical results

This last part of the chapter aims to discuss and reflect upon the empirical results in the light of previously presented theories and research.

4.3.1 Overall model relevance

With respect to the first part of the analysis, investigating the general relationship between employee satisfaction and financial performance, the results provide further evidence that a firm-level satisfaction-performance relationship to some extent exists, which differs with the different facets considered. Since previous literature has provided evidence of existing positive significant satisfaction-performance relationships on corporate level (e.g. Fulmer et al., 2003; Melián-González et al., 2015), similar results were indeed expected to be found also in this paper as well.

Nevertheless, it is known that other factors than employee satisfaction have significant and larger impact on corporate financial performance, such as industry belonging (Melián-González et al., 2015) and firm size (Dang et al., 2018; Melián-González et al., 2015). The magnitudes of the measured satisfaction-performance effect were thus expected to be moderate, as was also the case. The results from the first analysis showed an R-squared of around 57% and 34% for the criteria net profit and net profit per employee respectively, of which a proportion of around 14.5% and 21% of the variance explained could be referred to the seven job satisfaction facets. This is consistent with similar studies, where a maximum R-squared of up to around 0.26 is found by analysing the satisfaction-performance relationship in multiple linear regression analyses (Melián-González et al., 2015, p. 918)[5].

The first part of the analysis further shows that industry belonging is somewhat stronger related to financial performance relative to the employee satisfaction facets, in the defined models. Even more visible is that company size is highly related to the corporate financial situation. The significance of industry belonging and firm size found in this case is confirmed by previous research (Melián-González et al., 2015, pp.917-918) as was hence expected.

[5] R-squared for different criteria: ROA=0.21; Operating margin=0.26; Revenue per employee=0.12 (Melián-González et al., 2015, p. 918)

Both the general RWA and the quartile RWA results showed higher R-squared in the case of net profit than net profit per employee as criterion. Since the difference between the measures lays in the number of employees, a difference could logically capture the effect the number of employees has on the relationship between employee satisfaction and corporate financial performance. Since number of employees could also be seen as a proxy for company size (Dang et al., 2018, pp. 159-160), accounting for the number of employees might smooth out the effect of the predictor for company size in this model.

4.3.2 Relative importance of the satisfaction facets

In the first, general, part of the analysis, Pay is found to be the facet most strongly related to financial performance by being the largest in magnitude for both criterion and statistically significant for net profit as criterion. In the quartile RWA analyses, the relative importance in terms of RRW, as well as statistical significance, for Pay was found higher among the companies with the 50% more satisfied employees, hence in group [Q3 & Q4], than among those with the 50% less satisfied employees, group [Q1 & Q2]. Its relative importance in group [Q3 & Q4] is also higher than in the general RWA model, indicating that splitting the sample based on the general satisfaction scores does increase the understanding for how net profits vary with respect to satisfaction with payment.

Regarding the importance of satisfaction with payment, the consistence to existing literature is ambiguous. One the one hand, respected motivational theories such as Herzberg's two factor theory indicate that payment-related factors are to a large extent to consider extrinsic to employees, needed in order to avoid dissatisfaction but not necessarily able to drive satisfaction, motivation or performance (Herzberg, 1974, pp. 20-21). On the other hand, several of the related empirical studies do, in line with this study, find statistically significant relationships between satisfaction with payment and different variables of corporate financial performance (e.g. Melián-González et al., 2015; Schneider et al., 2003). One clue to this ambiguity might lay in Herzberg's own explanation, that payment can be a motivation driver if the general payment levels are already higher than the competitive average (Herzberg, 1974, pp. 20-21), to some extent supporting the quartile RWA findings of a higher importance of payment satisfaction for companies with higher general employee satisfaction.

A second notable finding is the fact that sustainability as a satisfaction facet is found more closely related to the measures of corporate financial performance than most other facets, both in the general RWAs as well as in the quartile RWA analyses although only not being statistically significant. The quartile analyses further suggest a stronger relation to financial performance among the lower quartiles, hence the generally less satisfied employees.

Interestingly, sustainability is not covered in standardized instruments for employee satisfaction, such as the JDI or MSQ, nor in empirical satisfaction-performance literature. The reason could be that sustainability has been considered increasingly important for companies primarily during the last two decades. In line with Mc Gregor's theory of how changing living conditions and societal aspects impact motivational aspects for workers (McGregor, 1997), sustainability could be seen as a current topic which present day employees are aware of and like to identify themselves with. Additional literature, arguing on existing relationships between employee satisfaction, organizational citizenship behaviour and organizational effectiveness (González & Garazo, 2006; Hung et al., 2011) further highlight the importance of identifying intrinsically important aspects for employees in order to enhance performance in an organization, to which sustainability factors could count.

In the quartile analyses, the facet $Relation$, representing the relation to co-workers, superiors and the work tasks, seems to be of higher relative importance for the criterion net profit among the 50% more satisfied employees, although not found statistically significant. This finding is partly confirmed by existing literature, in which aspects such as co-worker relationships is found intrinsic and motivational of employees (Bektas, 2017, pp. 627-631). Bektas further argue that intrinsic factors are effective once extrinsic satisfaction is fulfilled – hence securing a general basic level of satisfaction (ibid., p. 631).

It is relevant to recall that the facet $Relation$ consists of eleven different underlying single aspects related both to supervision and co-workers, which might increase the difficulty in drawing direct conclusions about the deeper meaning of this variable in the context of this study. This is confirmed by Yeager who found more significant results by splitting facets of supervision and co-workers in two facets that relate either to performance or to interpersonal relations (Yeager, 1981, pp. 209-212). Additionally, motivational theories classify factors relating to performance rather as intrinsic,

motivating factors, and interpersonal relations rather as extrinsic, hygiene factors (Herzberg, 1974). The multitude and different underlying characteristics of the facet $Relation$ including aspects of performance as well as interpersonal relations, might thus be a reason for the vague and somewhat inconsistent results in this study.

Theories in SHRM such as HPWS argue of the importance to align the corporate goals and strategy with the employees' goals and development (Becker & Huselid, 1998, p. 55; Jeong & Choi, 2016, p. 336). Interestingly, neither the facet $Image$, measuring the employee perception of the company image, nor $Career$, measuring the perceptions of career opportunities and further development, were found to have any notable connection to corporate financial performance. These findings are, on the other hand, consistent with the findings of Schneider et al., who found an insignificant relationship between the employee facet relationship between empowerment and corporate financial performance (Schneider et al., 2003, pp. 284-286). Melián-González et al. further considered the facets culture and values as well as career opportunities, but found no consistent relation to the measured variables of corporate financial performance (Melián-González et al., 2015, pp. 916-919).

4.3.3 Managerial importance of the results

In assessing the practical significance and relevance of the RWA results, the relative importance of each satisfaction facet are found to be small in magnitude and with low statistical significance compared to the variable for company size as well as industry belonging. It can thus be argued that the practical importance of all measured satisfaction facets is low. Yet, although employees are essential for the results in a company, it is reasonable that other factors such as company size and industry belonging, have a larger impact on corporate financial performance than employee satisfaction as demonstrated in literature (Dang et al., 2018; Melián-González et al., 2015). The lower relative importance of employee satisfaction can thus be considered expected. Moreover, if employee satisfaction only contribute to a few percent of a larger company's yearly profit, it can still be a noticeable amount for larger profit values.

On the other hand, as indicated by Johnson, small differences in the RWs can be a results of sampling and measurement errors, influencing the reliability and accuracy of the results (Johnson, 2004, p. 284). The large spread indicated by the bootstrapped CIs does affect the preciseness of the results and the possibility to draw strong conclusions.

Empirical results are also affected by the chosen techniques and variables used: It has frequently been suggested that not only profits are connected to employee satisfaction but also company value (Fulmer et al., 2003; Schneider et al., 2003) as well as measures connected to the total capital, or assets, of the company value (Fulmer et al., 2003; Hallowell, 1996; Schneider et al., 2003; Melián-González et al., 2015). The fact that several of the past studies using these different measures of performance show similar results as this study in terms of facet importance (Schneider et al., 2003; Melián-González et al., 2015) and significance levels (Melián-González et al., 2015) can, however, be seen as a robustness confirmation of the findings of the results in this paper.

The weak relationships between several facets of employee satisfaction and the net profit variables found in this study could also indicate that important mediating factors are not considered. In line with the theory of the SPC, the role of customer satisfaction in mediating the effect of employee satisfaction on corporate financial performance has had a large resonance in empirical research, especially on business unit level: A relationship between employee satisfaction, customer satisfaction and financial performance has been found in the hospitality business sector (Chi & Gursoy, 2009, p. 259) as well as in the bank retail sector (Hallowell, 1996, pp. 31-36; Loveman, 1998, pp. 24-32; Ryan et al., 1996, pp. 864-873). In the light of these findings, the factor of customer satisfaction might be essential to incorporate in order to accurately understand how the satisfaction-performance relationship looks and differs between different satisfaction facets as well as company groups of interest.

Overall, the results of this research projects indicate that employees' perception of the payment as well as sustainability are of higher importance for financial performance measured as net profit and net profit per employee relative to the other included job satisfaction facets. From a managerial perspective, investigating employees' perception of, and directing HR-activities to, these two aspects might hence be more effective in terms of corporate level changes in performance than focusing on

employee job satisfaction in general. Nevertheless, as argued in motivational literature, fulfilment of job satisfaction facets that do not directly impact motivation are also needed to avoid dissatisfaction and hence be able to affect motivation and performance (Ahmed et al., 2010; Herzberg, 1974; Hung et al., 2011).

The quartile analyses provide some support for the performance premium effect for companies that succeed in retaining a higher level of overall satisfaction, as hypothesised in this paper, by revealing a partially closer satisfaction-performance relationship with the generally more satisfied employees, especially with respect to payment satisfaction. Nevertheless, the effect sizes of the results in this study are moderate, indicating a limited possibility to impact financial performance through managing the considered job satisfaction facets, judging from the results of this thesis. The large spread in the resampled bootstrapped data also affects the preciseness and the ability to draw conclusions with regard to managerial importance of the results.

5 Conclusion

The following chapter firstly aims to summarize the research paper and its findings in order to provide an answer to the research question. Thereafter, the research project will be critically reflected upon in order to give an understanding for its drawbacks and the possibility to draw generalized conclusions from the work. Lastly, an outlook provides a discussion about possibilities for future prospects and further applications on the theme, based on this paper.

5.1 Summary

The review of existing literature in chapter 2 provided the theoretical foundations to the concept of the multifaceted satisfaction-performance relationship. Existing theoretical as well as empirical evidence of such a relationship could be identified. From a behavioural perspective, a close relationship between job satisfaction, motivation and performance is suggested. The relationship is further often believed to be of hierarchical nature with certain work-related aspects having a stronger influence on motivation and hence performance than others, depending on if they relate intrinsically or extrinsically to the employees. From a management perspective, the need to actively foster a pro-active and strategic HRM system is highlighted, which focuses on understanding and aligning employee needs and goals to the overall corporate strategy in order to draw optimal use of the human capital. On the basis of the literature review, a hypothesis was made that the satisfaction-performance relationship might be stronger in firms where employees are highly satisfied than in others. A research question was hence designed to investigate if the relationship between employee job satisfaction and corporate financial performance vary across companies depending on their general level of employee job satisfaction.

In order to accurately approach the research question, relevant data and empirical methodology was gathered and elaborated. Since the optimal methodology strongly depended on the data available, the data and sample was gathered, merged and cleaned prior to deciding on the choice of methodology. The possibility to use internally gathered firm level employee satisfaction data as well as financial data from Statista GmbH offered a unique opportunity to investigate the satisfaction-performance relationship between 158 firms in Germany, over three years. A discovered high level of correlation between the different employee satisfaction facets led to the choice of

using the RWA method, which minimizes the problem of multicollinearity among the predictor variables, as described in chapter 3.4.1. Possible methodological issues were defined and dealt with prior to performing the analyses, in order to assure an as accurate empirical procedure as possible.

By constructing RWA models that investigate the general relationship between seven different satisfaction facets and two measures of corporate financial performance, the first hypothesis of that a satisfaction-performance relationship exists that differs between different facets, was tested. The results confirmed that such a relationship does to some extent exist. One notable finding indicated that the satisfaction with payment as well as sustainability factors generally seem more closely related to the investigated measures of financial performance. The importance of satisfaction with payment is partially confirmed by existing research, but the effect of sustainability factors are until now largely unexplored. The analysis further showed the relevance of considering company size and industry belonging in order to understand the importance of employee satisfaction relative to other predictors for company net profits. By splitting the sampled companies into four quartiles based on their levels of overall employee satisfaction, quartile RWAs were carried out. These aimed to test the second hypothesis that the satisfaction-performance relationship variates positively with the general level of satisfaction in the work force. The results of the quartile RWA analyses were to a large extent statistically insignificant, but showed a tendency of a stronger relationship for the companies with higher employee satisfaction in terms of job satisfaction with payment. Satisfaction with sustainability was reversely found to have higher relative importance in companies with generally lower levels of employee satisfaction.

To summarize, this thesis aimed to answer the research question: *Does the relation between employee satisfaction and corporate financial performance vary across companies with different levels of employee satisfaction?* Based on the findings of this research project, the short answer is that the relationship varies to a certain extent. The first related hypothesis was that a positive satisfaction-performance relationship exists, which varies between different satisfaction facets. The first part of the analysis confirmed this hypothesis. Satisfaction with payment and sustainability were the facets found to have the largest relative importance for the two financial performance measured as net profit and net profit per employee. The second hypothesis that the

strength of the satisfaction-performance relationship is positively related to the general level of employee satisfaction in the company could partially be confirmed. The second part of the analysis revealed that predominantly satisfaction with payment is of higher relative importance in companies where overall employee satisfaction was higher. On the whole, the research paper provides additional evidence for an existing firm level relationship between employee satisfaction and financial performance in German firms from various industries, which is of multifaceted nature and which differ somewhat among companies with different general levels of employee satisfaction.

5.2 Critical acclaim

Regarding limitations of this thesis, a first general point relevant to address is the fact that the relationship between employee satisfaction and financial performance is of a complex nature, influenced by a larger number of aspects, as seen in the literature reviewed in chapter 2. This issue has been addressed by considering employee satisfaction from a multifaceted perspective as well as by including industry belonging and company size into the models. Yet, other variables could be important to take into considerations in order to fully understand the relationship. As described in chapter 2.4.3, the importance of customer satisfaction as a mediating factor in the satisfaction-performance relationship has been especially emphasised in previous literature and would hence be a relevant aspect to take into consideration. As presented in chapter 2.4.1 and 2.4.2, factors related to SHRM such as employee engagement and organizational citizenship behaviour, loyalty as well as recruitment and selection processes are also emphasised as important, driving factors in the satisfaction-performance relationship in literature. Hence, the inability to take these variables into account it is to consider a limitation of the analysis in this paper and possible improvement for future research.

A further issue relates to the sample size in this study. As mentioned at several points in this paper, the sample size is important for the preciseness of the estimates produced in the analysis and the possibility to draw generalized conclusions, especially when the variable sample distributions are estimated with bootstrapping techniques. The fact that only one study with a larger set of companies than in this study could be identified (Melián-González et al., 2015), indicates that the 158 companies in this study is constitutes a fair size compared to existing literature. Nonetheless, a larger sample

can be expected to improve the accuracy of the empirical analysis and results, especially with respect to the relatively small effects found in the results.

A third point to review is the choice to use the RWA as econometrical framework. As described in the methodological review in chapter 3.4, the relevance of investigating employee satisfaction from a multifaceted perspective and the high degree of multicollinearity of the different facets constitute the main advantages of using the RWA method in this study. However, the need to use techniques such as bootstrapping in order to calculate sample distributions only give approximate statistics. The lack of statistical significance estimations as well as problems with estimating bivariate variables such as industry belonging were also implications that to some extent could be solved, but might still have affected the interpretability of the statistical results. It could have been tested to increase the number of bootstrap resamples in order to see if the accuracy of the results improved. As described above, also a larger sample size might have had a positive effect on the preciseness of the estimated results. Moreover, the way of dealing with the pair-wise comparisons and the associated Bonferroni-correction of the significance levels could have been reconsidered, as an attempt to avoid the large adjustment of the CIs due to the multiple pair-wise comparisons made.

As seen in the previous research presented in chapter 2.5, considering job satisfaction as an overall concept or analysing the different satisfaction facets in separate models would remove the problem of multicollinearity as well as open for more possible methods to use in order to answer the research question of this paper. In that case, methods such as group mean comparisons and multiple linear regressions have been seen in the literature review (Schneider et al., 2003; Fulmer et al., 2003; Melián-González et al., 2015) and would also be plausible options to incorporate into this research project, although not enabling a joint assessment of the job satisfaction facets.

5.3 Outlook

With respect to the findings of this research project, the feelings and attitudes of employees towards their job partially prove to be related to the financial performance of the respective firm they work for. As furthermore described in chapter 2.1, the present day intensifying competitiveness puts pressure on businesses to look over their corporate competitive strategies. This indicates an increasing relevance of a future enhanced focus on employees as a possible source for company profitability, from a strategic and managerial perspective.

The results of the second part of the empirical analysis highlighted that companies with a generally higher level of satisfaction within the work force to some extent also have stronger relationships between satisfaction and corporate financial performance, at least with regard to satisfaction with payment. This underlines that although employee satisfaction related to payment seem more closely connected to performance in general, a strategy to put focus only on this might be unsuccessful if not appropriate levels of satisfaction with regard to the other facets are reached, hence the general satisfaction level.

Moreover, job satisfaction with sustainability showed higher relative importance than many other facets. This finding emphasizes the relevance to consider sustainable business making processes as possible sources of enhancement of corporate performance. Sustainability is indeed a theme of high importance in societal debates today, but not very commonly considered in the satisfaction-performance literature. Having a closer look on that specific satisfaction facet and its relation to company performance would hence also be an academically relevant extension of this study.

A last important aspect in this thesis concerns the choice of measures for company performance. By considering the previous research presented, it is clear that a many different variables are used as proxies for corporate performance, both financial and non-financial depending on the research purpose as well as data availability. Logically, the satisfaction-performance relationship also varies with the different performance variables. It would consequently be relevant addition to this study, from an empirical as well as managerial perspective, to apply the research question in this paper to a scenario where several different variables for company performance are used and compared.

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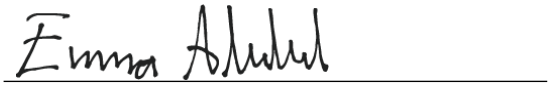
V Declaration of originality and Statement of consent

Declaration of originality

I hereby declare that this thesis and the work reported herein was composed by and originated entirely from me. Information derived from published and unpublished work of others has been acknowledged in the text and references are given in the list of references.



Hamburg, August 12th 2019

Signature and date

Statement of consent

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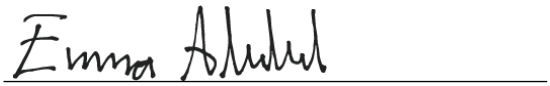

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Signature and date

VI Appendices

List of appendices

Appendix I: Variable definitions and sources

Variable	Description	Source
Dependent variables		
Netprofit	Total allual corporate profit in Germany after all costs are accounted for, as reported in the respective annual reports - measured in Euro	Publically available data online, gathered by Statista
Netprofit/Employee	Net profit devided by the total number of employees in Germany the respective company and year - measured in Euro	Publically available data online, gathered by Statista
Predictor variables		
Balance	Average company employee perception of *workload and balance* - measured on a Likert scale of 1="not at all applicable" to 5="fully applicable"	Statista, Employer Report
Career	Average company employee perception of *continuous development and prospects* - measured on a Likert scale of 1="not at all applicable" to 5="fully applicable"	Statista, Employer Report
Conditions	Average company employee perception of *work conditions and equipment* - measured on a Likert scale of 1="not at all applicable" to 5="fully applicable"	Statista, Employer Report
Image	Average company employee perception of *company image and growth* - measured on a Likert scale of 1="not at all applicable" to 5="fully applicable"	Statista, Employer Report
Pay	Average company employee perception of *payment and compensation* - measured on a Likert scale of 1="not at all applicable" to 5="fully applicable"	Statista, Employer Report
Relation	Average company employee perception of *relations, co-working and behaviour of colleagues and superiors* - measured on a Likert scale of 1="not at all applicable" to 5="fully applicable"	Statista, Employer Report
Sustain	Average company employee perception of *how sustainability is addressed* - measured on a Likert scale of 1="not at all applicable" to 5="fully applicable"	Statista, Employer Report
Additional variables		
Industry_dummy	Industry belonging of each company, according to the European Commission NACE-definition, with 8 industry groups one being reference group	Statista, Employer Report & own calculation
Size	Company size, measured as the logaritm of total company assets	Publically available data online, gathered by Statista & ow calculation
Year_dummy	Time variable for each year included (2014-2016), with 2014 being the reference year	Own calculation
Random	Variable created in excel, taking random values between 0 and 1	Own calculation

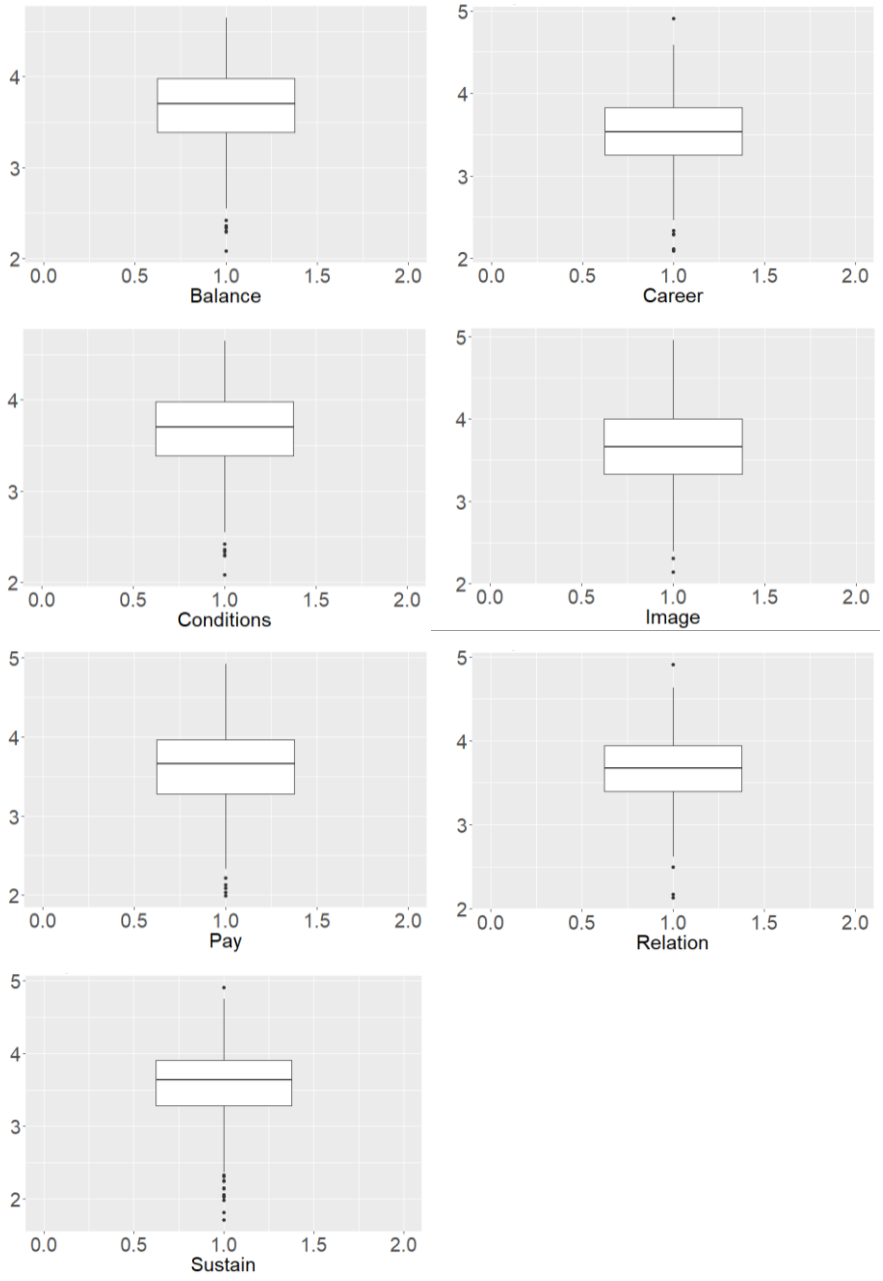
Appendix II: Industry definitions and groupings

Industry groups were created according to the head groups in the European Commission's statistical classification of economic activity in the European Community, also known as the NACE (European Commission, 2008). The two leftmost columns in the table below show the industry head groups according to the NACE, used in this thesis. The rightmost column show the industry sub groups, as defined in the Statista Best Employer Study, which are then organized in the NACE frameworks.

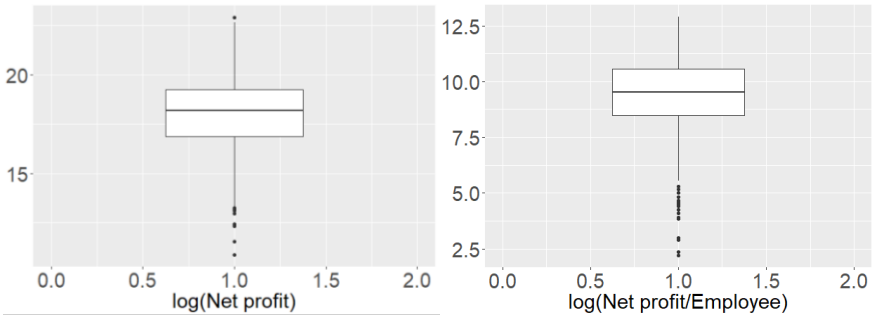
NACE-code	NACE-definition	Single industries from the Best Employer Study
C	Manufacturing	*- Automotive & commercial vehicles* *- Chemicals, pharmaceuticals & biotechnology* *- Manufacture & processing of construction materials* *- Manufacture of consumer goods*
G, D	Wholesale & Retail Trade (incl. Electricity, Gas & Stream)	*- Clothing (production & trade)* *- Trade (excluding clothing)* *- Medical devices and products* *- Suppliers automotive & commercial vehicles* *- Energy and Environment*
H	Transportation & Storage	*- Transport, traffic & logistics*
J	Information & Communication	*- Internet, media & communication* *- Technology & telecommunications*
K	Financial & Insurance services	*- Banking & financial service providers* *- Insurances & health insurances*
M	Professional, Scientific & Technical Activities	*- Electronics & electrical, automation & measuring techniques* *- Professional services & outsourcing*
Q	Human Health & Social Work Activities	*- Hospital, Care & Social services*
R	Arts, Entertainment & Recreation	*- Gastronomy, tourism & leisure*

Appendix III: Boxplots

Predictor variables

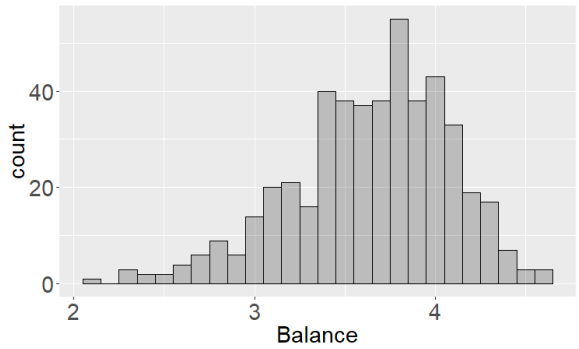


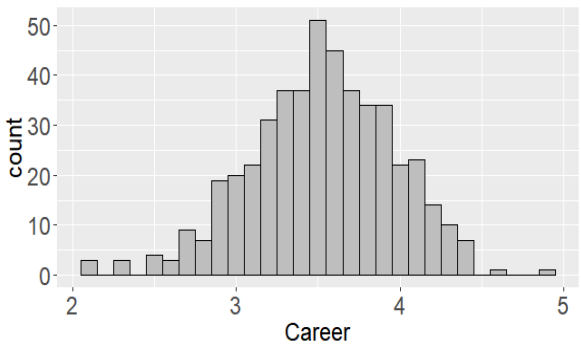
Dependent variables

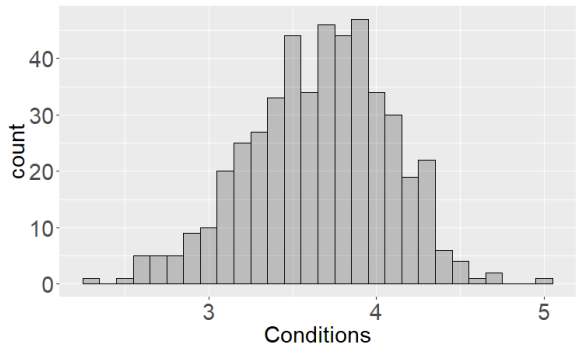


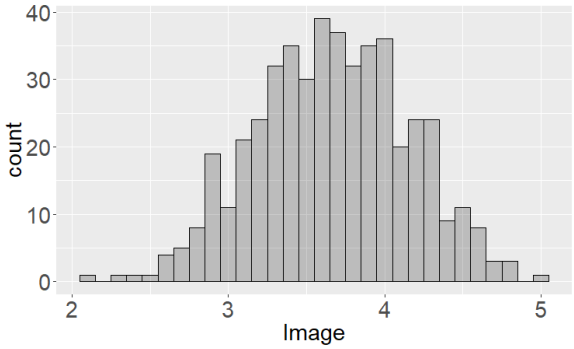
Appendix IV: Histograms

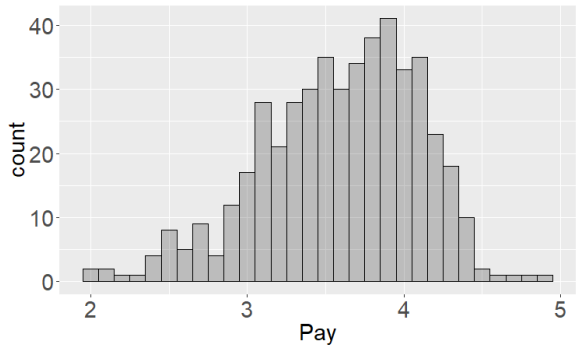
Predictor variables

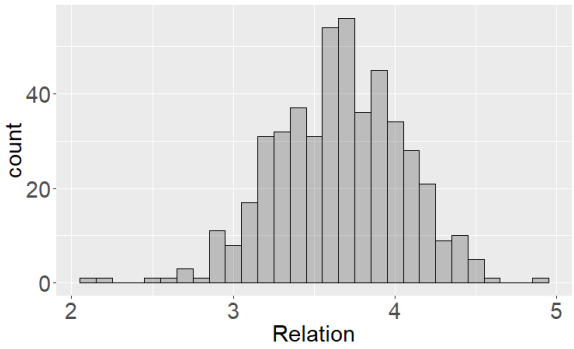


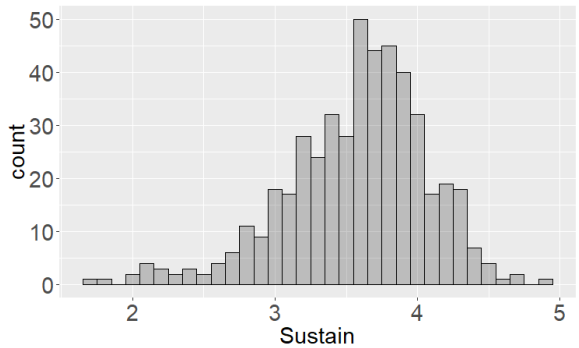




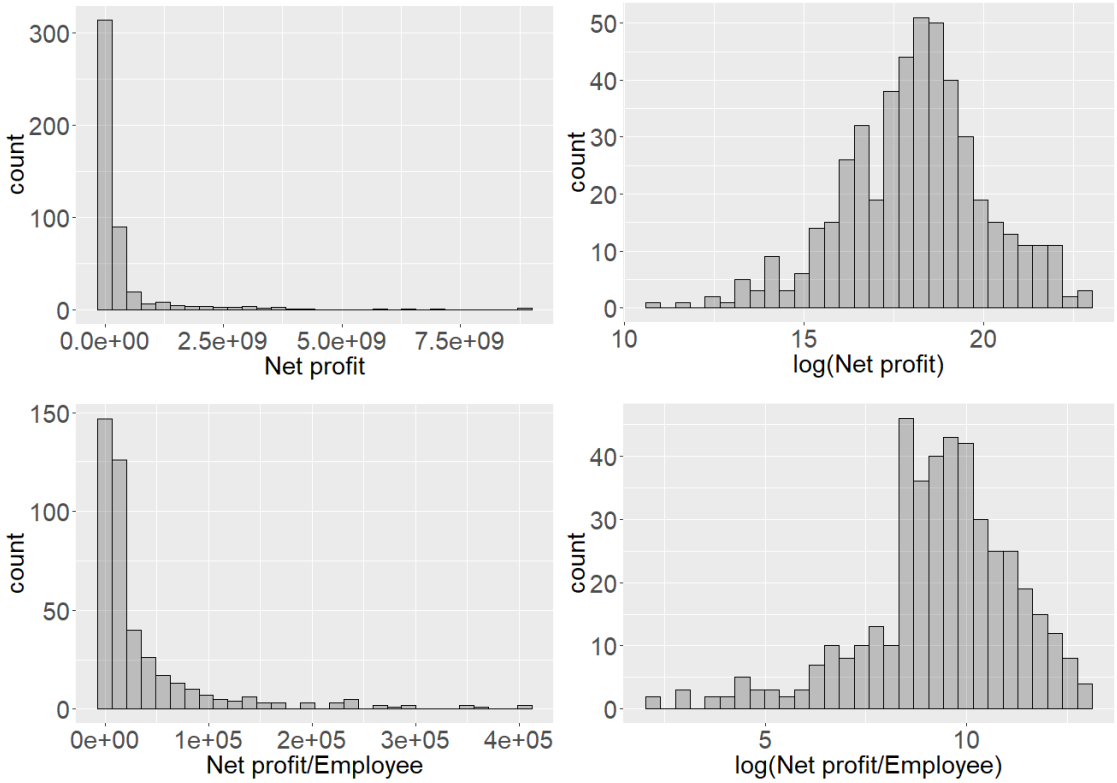








Dependent variables



Appendix V: Pearson correlation coefficient matrix

	Balance	*Career*	*Conditions*	*Image*	*Pay*	*Relation*	*Sustain*	*OverallSat*	*Netprofit*	*Netprofit. Employee*	*Size*
Balance	1.00										
Career	0.86	1.00									
Conditions	0.83	0.87	1.00								
Image	0.70	0.81	0.75	1.00							
Pay	0.79	0.80	0.77	0.61	1.00						
Relation	0.88	0.94	0.85	0.78	0.76	1.00					
Sustain	0.79	0.83	0.78	0.70	0.81	0.79	1.00				
OverallSat	0.92	0.96	0.92	0.84	0.88	0.94	0.90	1.00			
log(Netprofit)	0.06	0.03	0.10	-0.01	0.22	-0.01	0.17	0.09	1.00		
log(Netprofit.Employee)	0.15	0.10	0.18	0.09	0.26	0.09	0.21	0.17	0.83	1.00	
Size	0.12	0.03	0.11	-0.03	0.22	-0.02	0.16	0.10	0.70	0.52	1.00

Appendix VI: General RWA pairwise differences in relative contributions

	Dependent: log(Netprofit)				Dependent: log(Netprofit/Employee)			
	difference	0.9988	Lower 0.9988	Upper 0.9988	difference	0.9988	Lower 0.9988	Upper 0.9988
Industry_dummy-Balance	0.0512	*	0.0232	0.1067	0.0626	*	0.0157	0.1436
Industry_dummy-Career	0.0504	*	0.0256	0.1075	0.0627	*	0.0311	0.143
Industry_dummy-Conditions	0.0478	*	0.0246	0.1062	0.0574	*	0.0159	0.1381
Industry_dummy-Image	0.0532	*	0.0288	0.1082	0.0658	*	0.0288	0.1459
Industry_dummy-Pay	0.0283		-0.0099	0.0991	0.0407		-0.0194	0.1299
Industry_dummy-Relation	0.0447		-0.0005	0.1056	0.0628	*	0.0312	0.1436
Industry_dummy-Sustain	0.0344		-0.0043	0.0951	0.0522	*	0.0023	0.1382
Industry_dummy-Size	-0.3739	*	-0.4803	-0.1772	-0.1331		-0.2366	0.007
Industry_dummy-Random	0.0554	*	0.0274	0.1045	0.0676	*	0.03	0.1462
Balance-Career	-0.0008		-0.0098	0.0127	0.0002		-0.013	0.0212
Balance-Conditions	-0.0034		-0.0231	0.0091	-0.0052		-0.0296	0.0163
Balance-Image	0.002		-0.0237	0.0158	0.0032		-0.0107	0.0261
Balance-Pay	-0.0229		-0.0541	0.0007	-0.0219		-0.0731	0.0084
Balance-Relation	-0.0065		-0.0354	0.0118	0.0002		-0.0171	0.0206
Balance-Sustain	-0.0168		-0.0462	0.0043	-0.0104		-0.0496	0.0155
Balance-Size	-0.4252	*	-0.5284	-0.2481	-0.1957	*	-0.2928	-0.1111
Balance-Random	0.0042		-0.0077	0.0184	0.005		-0.0289	0.0335
Career-Conditions	-0.0027		-0.0163	0.0075	-0.0053		-0.0297	0.0091
Career-Image	0.0027		-0.0225	0.0115	0.003		-0.0098	0.0178
Career-Pay	-0.0221		-0.0557	0.0029	-0.022		-0.072	0.0045
Career-Relation	-0.0058		-0.031	0.0068	0.0001		-0.0167	0.0129
Career-Sustain	-0.016		-0.0447	0.001	-0.0105		-0.043	0.0084
Career-Size	-0.4244	*	-0.5274	-0.2523	-0.1958	*	-0.2946	-0.1113
Career-Random	0.0049		-0.009	0.0163	0.0049		-0.0285	0.0206
Conditions-Image	0.0054		-0.0214	0.0239	0.0084		-0.0096	0.0332
Conditions-Pay	-0.0194		-0.0562	0.0143	-0.0167		-0.0729	0.0252
Conditions-Relation	-0.0031		-0.0301	0.0168	0.0054		-0.0122	0.0308
Conditions-Sustain	-0.0133		-0.0436	0.0138	-0.0052		-0.0402	0.0249
Conditions-Size	-0.4217	*	-0.5284	-0.2534	-0.1905	*	-0.2909	-0.0985
Conditions-Random	0.0076		-0.0068	0.0298	0.0102		-0.0266	0.0386
Image-Pay	-0.0248		-0.0588	0.0061	-0.025		-0.0758	0.0045
Image-Relation	-0.0085		-0.0387	0.0248	-0.003		-0.0179	0.0112
Image-Sustain	-0.0187		-0.0475	0.0085	-0.0136		-0.0494	0.0065
Image-Size	-0.4271	*	-0.5297	-0.2536	-0.1988	*	-0.2973	-0.1159
Image-Random	0.0022		-0.0121	0.0289	0.0019		-0.0303	0.0178
Pay-Relation	0.0163		-0.0244	0.0505	0.0221		-0.0047	0.0651
Pay-Sustain	0.0061		-0.0275	0.0419	0.0115		-0.0301	0.063
Pay-Size	-0.4023	*	-0.5198	-0.2202	-0.1738	*	-0.2838	-0.0749
Pay-Random	0.027	*	0.0037	0.0606	0.0269		-0.0189	0.0787
Relation-Sustain	-0.0102		-0.0345	0.0237	-0.0106		-0.0485	0.0082
Relation-Size	-0.4186	*	-0.5214	-0.2539	-0.1959	*	-0.289	-0.1083
Relation-Random	0.0107		-0.0067	0.04	0.0048		-0.0246	0.0264
Sustain-Size	-0.4084	*	-0.5135	-0.2283	-0.1853	*	-0.2864	-0.0962
Sustain-Random	0.0209		-0.0004	0.0513	0.0154		-0.0226	0.0573
Size-Random	0.4293	*	0.2634	0.5318	0.2007	*	0.1177	0.2989

* indicates that CI for difference does not include 0.
CAUTION: Bootstrap confidence intervals can be somewhat liberal.

Appendix VII: Quartile RWA result tables

Criterion: log(Netprofit)

Two group comparisons

	Percentage	0.9986	*Lower* 0.9986	*Upper* 0.9986
Group: Q1 & Q2				
Balance	0.0115	_BCDEFGHI	0.0022	0.0935
Career	0.0074	__CDEFGHI	0.0021	0.0323
Conditions	0.0176	_BCDEFGHI	0.003	0.0611
Image	0.0079	_BCDEFGHI	0.0012	0.0587
Pay	0.0221	_BCDEFGHI	0.0079	0.0646
Relation	0.0053	_BCDEFGHI	0.0018	0.0452
Sustain	0.0522	_BCDEFG__	0.0103	0.1314
Size	0.3363	A_____	0.1742	0.5004
Random	0.003	_BCDEFGHI	0.0001	0.0465
Group: Q3 & Q4				
Balance	0.0264	_BCDEFGH_	0.006	0.0718
Career	0.0132	__CDEFGH_	0.0059	0.0382
Conditions	0.0051	___DEFGHI	0.0023	0.0372
Image	0.0062	__CDEFGHI	0.0018	0.0353
Pay	0.0675	_BCDE____	0.0147	0.1667
Relation	0.0397	_BCDEF___	0.0086	0.0987
Sustain	0.0136	__CDEFGHI	0.0023	0.0495
Size	0.4891	A_____	0.337	0.6047
Random	0.0003	___DEFGHI	0.0001	0.0323

Four group comparisons

	Percentage	0.9986	*Lower* 0.9986	*Upper* 0.9986
Group: Q1				
Balance	0.0459	ABCDEFGHI	0.0019	0.2046
Career	0.009	_BCDEFGHI	0.0023	0.0559
Conditions	0.0088	_BCDEFGHI	0.001	0.0933
Image	0.0216	_BCDEFGHI	0.0008	0.1674
Pay	0.0183	_BCDEFGHI	0.0026	0.0778
Relation	0.0072	ABCDEFGHI	0.0024	0.0937
Sustain	0.0352	ABCDEFGHI	0.0016	0.1675
Size	0.2565	ABCD_____	0.0366	0.5481
Random	0.0156	_BCDEFGHI	0.0002	0.0917
Group: Q2				
Balance	0.0067	_BCDEFGHI	0.002	0.0832
Career	0.0131	_BCDEFGHI	0.0015	0.0778
Conditions	0.034	_BCDEFGHI	0.0012	0.1115
Image	0.0053	_BCDEFGHI	0.0014	0.0504
Pay	0.0217	_BCDEFGHI	0.0037	0.1171
Relation	0.0119	_BCDEFGHI	0.0014	0.0959
Sustain	0.0813	_BCDEFGHI	0.0012	0.2069
Size	0.4186	A_____	0.2418	0.5612
Random	0.0004	_BCDEFGHI	0.0001	0.0618
Group: Q3				
Balance	0.0283	_BCDEFGHI	0.0036	0.1055
Career	0.0146	_BCDEFGHI	0.0043	0.0934
Conditions	0.0054	_BCDEFGHI	0.001	0.0473
Image	0.0129	_BCDEFGHI	0.0045	0.0609
Pay	0.062	_BCDEFGHI	0.003	0.2309
Relation	0.0528	_BCDEFGH_	0.0075	0.1327
Sustain	0.0243	_BCDEFGHI	0.0028	0.0964
Size	0.4548	A_____	0.2666	0.6308
Random	0.0029	_BCDEFGHI	0.0004	0.0547
Group: Q4				
Balance	0.0236	_BCDEFGHI	0.0047	0.1076
Career	0.0238	_BCDEFGH_	0.0072	0.059
Conditions	0.0067	__CDEFGHI	0.0025	0.0477
Image	0.008	_BCDEFGHI	0.0017	0.0429
Pay	0.0528	_BCDEFGHI	0.0068	0.1497
Relation	0.0378	_BCDEFGH_	0.0076	0.1265
Sustain	0.0052	_BCDEFGHI	0.0022	0.0445
Size	0.569	A_____	0.3668	0.6666
Random	0.0016	_BCDEFGHI	0.0001	0.0538

Criterion: log(Netprofit/Employee)

Two group comparisons

	Percentage	0.9986	*Lower* 0.9986	*Upper* 0.9986
Group: Q1 & Q2				
Balance	0.0151	_BCDEFGHI	0.0007	0.1043
Career	0.0123	_BCDEFGHI	0.0014	0.0771
Conditions	0.0124	_BCDEFGHI	0.0008	0.0635
Image	0.0021	_BCDEFGHI	0.0006	0.0505
Pay	0.0167	_BCDEFGHI	0.0031	0.0665
Relation	0.0048	_BCDEFGHI	0.0009	0.0376
Sustain	0.0246	_BCDEFGHI	0.001	0.0985
Size	0.2264	A_____	0.1024	0.3891
Random	0.0085	_BCDEFGHI	0.0002	0.0723
Group: Q3 & Q4				
Balance	0.0128	_BCDEFGHI	0.0016	0.07
Career	0.0043	_BCDEFGHI	0.0018	0.0396
Conditions	0.0095	_BCDEFGHI	0.0008	0.0599
Image	0.0029	_BCDEFGHI	0.0012	0.0362
Pay	0.0708	ABCDEFGHI	0.0009	0.2409
Relation	0.0114	_BCDEFGHI	0.0033	0.0691
Sustain	0.0142	_BCDEFGHI	0.0013	0.0649
Size	0.2202	AB_____	0.1054	0.3865
Random	0.0021	_BCDEFGHI	0.0001	0.0406

Four group comparisons

	Percentage	0.9986	*Lower* 0.9986	*Upper* 0.9986
Group: Q1				
Balance	0.0539	ABCDEFGHI	0.0023	0.2411
Career	0.0073	_BCDEFGHI	0.0022	0.0747
Conditions	0.0042	_BCDEFGHI	0.0015	0.0763
Image	0.0155	ABCDEFGHI	0.0012	0.1541
Pay	0.0167	_BCDEFGHI	0.0039	0.1254
Relation	0.0112	ABCDEFGHI	0.0019	0.1288
Sustain	0.0055	_BCDEFGHI	0.0026	0.105
Size	0.2477	ABCD_____	0.0456	0.5267
Random	0.0272	_BCDEFGHI	0.0006	0.1387
Group: Q2				
Balance	0.0047	_BCDEFGHI	0.0025	0.1014
Career	0.0428	ABCDEFGHI	0.0053	0.1641
Conditions	0.0414	ABCDEFGHI	0.0018	0.171
Image	0.0202	_BCDEFGHI	0.0028	0.1589
Pay	0.0206	ABCDEFGHI	0.0024	0.1153
Relation	0.0264	ABCDEFGHI	0.0032	0.1344
Sustain	0.1115	ABCDEFGHI	0.0017	0.2773
Size	0.202	ABCD_____	0.075	0.3774
Random	0.0007	__CDEFGHI	0.0002	0.054
Group: Q3				
Balance	0.0062	_BCDEFGHI	0.0011	0.0666
Career	0.0075	_BCDEFGHI	0.0018	0.0552
Conditions	0.0049	_BCDEFGHI	0.0008	0.0555
Image	0.0131	_BCDEFGHI	0.0028	0.0646
Pay	0.0815	ABCDEFGHI	0.0008	0.2833
Relation	0.033	_BCDEFGHI	0.0017	0.1159
Sustain	0.0076	_BCDEFGHI	0.0021	0.0662
Size	0.274	AB_____	0.1113	0.4558
Random	0.0021	_BCDEFGHI	0.0003	0.0729
Group: Q4				
Balance	0.0605	ABCDEFGHI	0.0037	0.2154
Career	0.011	_BCDEFGHI	0.0037	0.058
Conditions	0.0176	_BCDEFGHI	0.0017	0.1139
Image	0.0028	_BCDEFGHI	0.0009	0.0875
Pay	0.0198	ABCDEFGHI	0.0019	0.1162
Relation	0.0138	_BCDEFGHI	0.0044	0.0561
Sustain	0.0064	_BCDEFGHI	0.0012	0.1065
Size	0.2424	AB_____	0.0783	0.4224
Random	0.0243	_BCDEFGHI	0.0002	0.1267

Appendix VIII: Quartile RWA pairwise differences in relative contributions for net profit

Criterion: log(Netprofit) – two group comparisons

	Group: 1 & 2				Group 3 & 4			
	difference	0.9986	Lower 0.9986	Upper 0.9986	difference	0.9986	Lower 0.9986	Upper 0.9986
Balance-Career	0.0042		-0.0269	0.0712	0.0132		-0.0236	0.0633
Balance-Conditions	-0.006		-0.046	0.0616	0.0214		-0.0115	0.068
Balance-Image	0.0037		-0.0539	0.0835	0.0203		-0.0121	0.0687
Balance-Pay	-0.0106		-0.048	0.0582	-0.041		-0.1326	0.0308
Balance-Relation	0.0062		-0.0339	0.0749	-0.0132		-0.0654	0.0457
Balance-Sustain	-0.0407		-0.1248	0.0403	0.0128		-0.0272	0.0653
Balance-Size	-0.3247	*	-0.4949	-0.0877	-0.4626	*	-0.5911	-0.2839
Balance-Random	0.0085		-0.0412	0.0931	0.0262		-0.0119	0.0692
Career-Conditions	-0.0102		-0.0498	0.0131	0.0081		-0.0122	0.0262
Career-Image	-0.0005		-0.0501	0.0254	0.007		-0.0192	0.0253
Career-Pay	-0.0147		-0.0467	0.021	-0.0543		-0.1557	0.0177
Career-Relation	0.002		-0.0305	0.0195	-0.0265		-0.0697	0.0008
Career-Sustain	-0.0448		-0.106	0.0107	-0.0004		-0.0377	0.0283
Career-Size	-0.3289	*	-0.4962	-0.1535	-0.4759	*	-0.5907	-0.3158
Career-Random	0.0043		-0.041	0.0319	0.0129		-0.0198	0.0357
Conditions-Image	0.0097		-0.0463	0.0484	-0.0011		-0.031	0.0176
Conditions-Pay	-0.0045		-0.0479	0.0461	-0.0624	*	-0.1613	-0.0057
Conditions-Relation	0.0122		-0.0253	0.0508	-0.0346	*	-0.0817	-0.0033
Conditions-Sustain	-0.0346		-0.1051	0.0404	-0.0086		-0.0422	0.0328
Conditions-Size	-0.3187	*	-0.4933	-0.1476	-0.484	*	-0.6009	-0.3262
Conditions-Random	0.0145		-0.0403	0.0533	0.0048		-0.0244	0.0322
Image-Pay	-0.0142		-0.0533	0.0452	-0.0613	*	-0.1603	-0.0028
Image-Relation	0.0025		-0.0326	0.0512	-0.0335		-0.0913	0.0061
Image-Sustain	-0.0443		-0.1239	0.0241	-0.0075		-0.046	0.0289
Image-Size	-0.3284	*	-0.4955	-0.1643	-0.4829	*	-0.5966	-0.3105
Image-Random	0.0048		-0.0305	0.0458	0.0059		-0.0235	0.0337
Pay-Relation	0.0168		-0.028	0.0477	0.0278		-0.0664	0.1292
Pay-Sustain	-0.0301		-0.1011	0.0164	0.0538		-0.0116	0.1455
Pay-Size	-0.3142	*	-0.4913	-0.1459	-0.4216	*	-0.5588	-0.1941
Pay-Random	0.0191		-0.0271	0.0564	0.0672	*	0.0065	0.1615
Relation-Sustain	-0.0469		-0.116	0.0138	0.026		-0.0264	0.0867
Relation-Size	-0.3309	*	-0.4932	-0.1583	-0.4494	*	-0.5709	-0.2804
Relation-Random	0.0023		-0.042	0.0374	0.0394		-0.0088	0.0962
Sustain-Size	-0.2841	*	-0.4797	-0.1034	-0.4754	*	-0.5864	-0.318
Sustain-Random	0.0492		-0.0207	0.1273	0.0134		-0.0179	0.0443
Size-Random	0.3333	*	0.167	0.5003	0.4888	*	0.334	0.6012

* indicates that CI for difference does not include 0.
CAUTION: Bootstrap confidence intervals can be somewhat liberal.

Criterion: log(Netprofit) – four group comparisons

	Group: Q1				Group: Q2				Group: Q3				Group: Q4			
	difference	0.9986	Lower 0.9986	Upper 0.9986	difference	0.9986	Lower 0.9986	Upper 0.9986	difference	0.9986	Lower 0.9986	Upper 0.9986	difference	0.9986	Lower 0.9986	Upper 0.9986
Balance-Career	0.0369		-0.0268	0.1728	-0.0063		-0.0621	0.0641	0.0137		-0.0817	0.0837	-0.0003		-0.0348	0.0849
Balance-Conditions	0.0371		-0.0695	0.1679	-0.0273		-0.0952	0.0736	0.0229		-0.0247	0.0989	0.0168		-0.014	0.0958
Balance-Image	0.0243		-0.1527	0.1925	0.0014		-0.041	0.0772	0.0154		-0.0435	0.0886	0.0156		-0.0264	0.0967
Balance-Pay	0.0276		-0.0505	0.1829	-0.015		-0.1036	0.0665	-0.0337		-0.1823	0.0723	-0.0293		-0.1199	0.0705
Balance-Relation	0.0387		-0.0366	0.1742	-0.0052		-0.0732	0.0709	-0.0245		-0.0897	0.0412	-0.0143		-0.1055	0.0794
Balance-Sustain	0.0107		-0.1299	0.1796	-0.0746		-0.2028	0.0407	0.004		-0.0851	0.0885	0.0183		-0.0175	0.1003
Balance-Size	-0.2106		-0.5083	0.1295	-0.4118	*	-0.5569	-0.2193	-0.4265	*	-0.6128	-0.1913	-0.5454	*	-0.661	-0.2784
Balance-Random	0.0304		-0.0875	0.1988	0.0064		-0.0375	0.0825	0.0254		-0.0386	0.1026	0.022		-0.0305	0.1067
Career-Conditions	0.0003		-0.0664	0.0384	-0.021		-0.0946	0.0537	0.0092		-0.0322	0.0831	0.0171		-0.0368	0.0482
Career-Image	-0.0125		-0.1538	0.0446	0.0077		-0.0352	0.0684	0.0017		-0.0463	0.0701	0.0159		-0.0228	0.0482
Career-Pay	-0.0093		-0.0619	0.0319	-0.0087		-0.0891	0.0706	-0.0473		-0.2194	0.0766	-0.029		-0.1364	0.0353
Career-Relation	0.0019		-0.059	0.0306	0.0012		-0.0496	0.0409	-0.0382		-0.1077	0.0539	-0.014		-0.082	0.0167
Career-Sustain	-0.0262		-0.1444	0.0303	-0.0683		-0.1986	0.0552	-0.0097		-0.0812	0.0691	0.0186		-0.0243	0.0501
Career-Size	-0.2475		-0.5408	0.0065	-0.4055	*	-0.5508	-0.1995	-0.4402	*	-0.6137	-0.2404	-0.5452	*	-0.6466	-0.3372
Career-Random	-0.0065		-0.0854	0.0533	0.0127		-0.0505	0.0703	0.0118		-0.0339	0.0743	0.0223		-0.0351	0.0576
Conditions-Image	-0.0128		-0.1549	0.0619	0.0287		-0.0362	0.1029	-0.0075		-0.0515	0.0315	-0.0012		-0.0334	0.0355
Conditions-Pay	-0.0095		-0.0649	0.0562	0.0123		-0.0625	0.097	-0.0566		-0.2267	0.036	-0.0461		-0.1412	0.022
Conditions-Relation	0.0016		-0.0743	0.0849	0.0221		-0.049	0.0929	-0.0474		-0.1219	0.0142	-0.0311		-0.1178	0.0247
Conditions-Sustain	-0.0265		-0.1347	0.0539	-0.0473		-0.1948	0.0904	-0.0189		-0.09	0.0304	0.0015		-0.0338	0.0413
Conditions-Size	-0.2477	*	-0.5379	-0.0083	-0.3845	*	-0.5466	-0.1403	-0.4494	*	-0.6242	-0.2576	-0.5623	*	-0.6601	-0.3324
Conditions-Random	-0.0068		-0.0868	0.0828	0.0337		-0.0308	0.1039	0.0025		-0.047	0.0424	0.0051		-0.0392	0.0462
Image-Pay	0.0033		-0.0501	0.1409	-0.0164		-0.0954	0.0345	-0.049		-0.2144	0.0366	-0.0449		-0.141	0.012
Image-Relation	0.0144		-0.0777	0.1555	-0.0066		-0.0673	0.0344	-0.0399		-0.123	0.0356	-0.0299		-0.1175	0.0194
Image-Sustain	-0.0137		-0.1479	0.1386	-0.076		-0.1766	0.039	-0.0114		-0.0845	0.0491	0.0027		-0.0344	0.0342
Image-Size	-0.2349	*	-0.5051	-0.0081	-0.4132	*	-0.5581	-0.2219	-0.4419	*	-0.6174	-0.2431	-0.561	*	-0.6622	-0.3417
Image-Random	0.006		-0.0742	0.1301	0.005		-0.0528	0.0468	0.01		-0.048	0.0587	0.0064		-0.0412	0.0388
Pay-Relation	0.0111		-0.0771	0.0633	0.0098		-0.0857	0.0893	0.0091		-0.1046	0.1967	0.015		-0.0863	0.1387
Pay-Sustain	-0.0169		-0.1209	0.0513	-0.0596		-0.178	0.0476	0.0376		-0.0559	0.1959	0.0476		-0.0282	0.1432
Pay-Size	-0.2382	*	-0.5264	-0.009	-0.3968	*	-0.5325	-0.1586	-0.3929	*	-0.6106	-0.0646	-0.5162	*	-0.6343	-0.2832
Pay-Random	0.0028		-0.0732	0.0593	0.0214		-0.0324	0.1074	0.0591		-0.0334	0.2228	0.0513		-0.0252	0.1454
Relation-Sustain	-0.0281		-0.1424	0.0564	-0.0694		-0.1973	0.0501	0.0285		-0.0881	0.1138	0.0326		-0.0161	0.1197
Relation-Size	-0.2493		-0.5296	0.04	-0.4067	*	-0.5554	-0.1619	-0.402	*	-0.6045	-0.1592	-0.5312	*	-0.6384	-0.3126
Relation-Random	-0.0084		-0.085	0.0747	0.0115		-0.049	0.0926	0.05		-0.0223	0.1202	0.0363		-0.0243	0.1209
Sustain-Size	-0.2213		-0.5302	0.0822	-0.3372	*	-0.5226	-0.1068	-0.4305	*	-0.6017	-0.1901	-0.5638	*	-0.6607	-0.3517
Sustain-Random	0.0197		-0.0817	0.1242	0.081		-0.0297	0.2046	0.0214		-0.0328	0.0877	0.0037		-0.0446	0.0413
Size-Random	0.2409	*	0.021	0.5342	0.4182	*	0.1964	0.5583	0.452	*	0.2414	0.6276	0.5674	*	0.3563	0.6634

* indicates that CI for difference does not include 0.
CAUTION: Bootstrap confidence intervals can be somewhat liberal.

Appendix IX: Quartile RWA pairwise differences in relative contributions for net profit per employee

Criterion: log(Netprofit/Employee) – two group comparisons

	Group: 1 & 2				Group 3 & 4			
	difference	0.9986	Lower 0.9986	Upper 0.9986	difference	0.9986	Lower 0.9986	Upper 0.9986
Balance-Career	0.0028		-0.0603	0.0844	0.0085		-0.0202	0.062
Balance-Conditions	0.0027		-0.0544	0.0877	0.0033		-0.0495	0.0579
Balance-Image	0.013		-0.0306	0.0992	0.0099		-0.0319	0.0667
Balance-Pay	-0.0016		-0.0539	0.0816	-0.058		-0.193	0.0273
Balance-Relation	0.0103		-0.0316	0.0862	0.0014		-0.0563	0.0546
Balance-Sustain	-0.0095		-0.0808	0.0712	-0.0014		-0.0475	0.0535
Balance-Size	-0.2113	*	-0.3816	-0.0151	-0.2074	*	-0.3696	-0.069
Balance-Random	0.0066		-0.0557	0.0952	0.0107		-0.0321	0.0686
Career-Conditions	-0.0001		-0.0456	0.0608	-0.0052		-0.0512	0.0214
Career-Image	0.0102		-0.0328	0.0711	0.0014		-0.0304	0.0312
Career-Pay	-0.0043		-0.0416	0.0512	-0.0665		-0.2296	0.0237
Career-Relation	0.0076		-0.0241	0.0517	-0.0071		-0.054	0.0131
Career-Sustain	-0.0123		-0.0819	0.0703	-0.0098		-0.0591	0.0261
Career-Size	-0.214	*	-0.3813	-0.0687	-0.2158	*	-0.3825	-0.0946
Career-Random	0.0038		-0.0684	0.076	0.0023		-0.0349	0.0347
Conditions-Image	0.0103		-0.0359	0.0581	0.0066		-0.0299	0.054
Conditions-Pay	-0.0043		-0.0516	0.0487	-0.0613		-0.2337	0.0496
Conditions-Relation	0.0077		-0.0257	0.056	-0.0019		-0.0499	0.0492
Conditions-Sustain	-0.0122		-0.0677	0.0489	-0.0047		-0.0597	0.0556
Conditions-Size	-0.214	*	-0.3847	-0.0605	-0.2107	*	-0.3818	-0.0855
Conditions-Random	0.0039		-0.0702	0.0585	0.0074		-0.0365	0.0552
Image-Pay	-0.0146		-0.0629	0.0212	-0.0679		-0.2279	0.012
Image-Relation	-0.0026		-0.0313	0.0357	-0.0085		-0.0626	0.0288
Image-Sustain	-0.0225		-0.0932	0.0362	-0.0113		-0.0612	0.0222
Image-Size	-0.2242	*	-0.3832	-0.0932	-0.2173	*	-0.372	-0.0979
Image-Random	-0.0064		-0.0711	0.0432	0.0008		-0.0335	0.0354
Pay-Relation	0.0119		-0.0254	0.0559	0.0594		-0.0274	0.229
Pay-Sustain	-0.0079		-0.0689	0.0407	0.0566		-0.039	0.2298
Pay-Size	-0.2097	*	-0.3709	-0.069	-0.1494		-0.3703	0.1164
Pay-Random	0.0082		-0.0623	0.0522	0.0687		-0.0168	0.2355
Relation-Sustain	-0.0199		-0.0877	0.0233	-0.0028		-0.0546	0.0528
Relation-Size	-0.2216	*	-0.3708	-0.0861	-0.2088	*	-0.3784	-0.087
Relation-Random	-0.0038		-0.0673	0.0318	0.0093		-0.0324	0.0682
Sustain-Size	-0.2018	*	-0.3452	-0.0458	-0.206	*	-0.3815	-0.0468
Sustain-Random	0.0161		-0.065	0.0975	0.0121		-0.0368	0.0621
Size-Random	0.2178	*	0.0849	0.3715	0.2181	*	0.0974	0.3694

* indicates that CI for difference does not include 0.

CAUTION: Bootstrap confidence intervals can be somewhat liberal.

Criterion: log(Netprofit/Employee) – four group comparisons

	Group: Q1				Group: Q2				Group: Q3				Group: Q4			
	difference	0.9986	Lower 0.9986	Upper 0.9986	difference	0.9986	Lower 0.9986	Upper 0.9986	difference	0.9986	Lower 0.9986	Upper 0.9986	difference	0.9986	Lower 0.9986	Upper 0.9986
Balance-Career	0.0466		-0.0379	0.2097	-0.0382		-0.1377	0.0421	-0.0013		-0.0469	0.0484	0.0495		-0.0229	0.1943
Balance-Conditions	0.0497		-0.0516	0.2192	-0.0367		-0.1622	0.0754	0.0013		-0.049	0.0586	0.043		-0.0696	0.1976
Balance-Image	0.0384		-0.1156	0.231	-0.0156		-0.1523	0.0845	-0.0069		-0.0561	0.0465	0.0578		-0.0313	0.1755
Balance-Pay	0.0372		-0.0648	0.2088	-0.016		-0.0973	0.0919	-0.0753		-0.2564	0.0294	0.0407		-0.0602	0.2104
Balance-Relation	0.0427		-0.0965	0.2086	-0.0218		-0.1166	0.0465	-0.0267		-0.0977	0.0391	0.0467		-0.022	0.1779
Balance-Sustain	0.0484		-0.0906	0.2337	-0.1069		-0.2599	0.0588	-0.0014		-0.0616	0.0598	0.0541		-0.047	0.2
Balance-Size	-0.1938		-0.5193	0.0929	-0.1974	*	-0.3619	-0.0405	-0.2678	*	-0.4447	-0.0847	-0.1818		-0.3871	0.0272
Balance-Random	0.0267		-0.1077	0.2388	0.0039		-0.0481	0.0926	0.0042		-0.0666	0.0646	0.0363		-0.0795	0.1953
Career-Conditions	0.0031		-0.0519	0.0597	0.0014		-0.1487	0.1409	0.0026		-0.0439	0.0442	-0.0066		-0.0994	0.0514
Career-Image	-0.0082		-0.1369	0.0634	0.0226		-0.1282	0.1449	-0.0056		-0.0534	0.036	0.0082		-0.0684	0.0491
Career-Pay	-0.0095		-0.1095	0.0578	0.0222		-0.0663	0.1375	-0.074		-0.2562	0.0347	-0.0088		-0.0962	0.0508
Career-Relation	-0.0039		-0.1053	0.0446	0.0164		-0.0752	0.1046	-0.0254		-0.0859	0.0234	-0.0028		-0.0318	0.0349
Career-Sustain	0.0017		-0.0965	0.0611	-0.0687		-0.2297	0.1051	-0.0001		-0.0521	0.0475	0.0046		-0.0934	0.0523
Career-Size	-0.2404	*	-0.5143	-0.0192	-0.1592		-0.3668	0.0222	-0.2665	*	-0.4449	-0.0931	-0.2314	*	-0.4112	-0.0458
Career-Random	-0.0199		-0.1199	0.062	0.0421		-0.0167	0.1547	0.0055		-0.0653	0.0459	-0.0133		-0.1161	0.0482
Conditions-Image	-0.0113		-0.1407	0.0521	0.0212		-0.1247	0.1536	-0.0082		-0.0549	0.0445	0.0148		-0.0642	0.1081
Conditions-Pay	-0.0125		-0.1154	0.0567	0.0208		-0.0687	0.1481	-0.0766		-0.2775	0.0521	-0.0022		-0.0993	0.0757
Conditions-Relation	-0.007		-0.1045	0.0621	0.015		-0.1034	0.1522	-0.0281		-0.1096	0.0389	0.0038		-0.04	0.0974
Conditions-Sustain	-0.0013		-0.0983	0.0632	-0.0701		-0.2516	0.1155	-0.0027		-0.0624	0.0493	0.0111		-0.0876	0.1102
Conditions-Size	-0.2435		-0.4944	0.0087	-0.1606		-0.3337	0.0528	-0.2691	*	-0.4424	-0.1045	-0.2248	*	-0.4152	-0.0326
Conditions-Random	-0.023		-0.1298	0.0551	0.0407		-0.0306	0.164	0.0028		-0.0636	0.0456	-0.0067		-0.1173	0.1101
Image-Pay	-0.0012		-0.1163	0.1319	-0.0004		-0.0966	0.1374	-0.0684		-0.2681	0.0373	-0.017		-0.0987	0.0514
Image-Relation	0.0043		-0.0979	0.1264	-0.0062		-0.1121	0.1451	-0.0198		-0.0949	0.044	-0.011		-0.0475	0.0639
Image-Sustain	0.01		-0.0987	0.1465	-0.0913		-0.261	0.0724	0.0055		-0.0574	0.0559	-0.0037		-0.0978	0.0845
Image-Size	-0.2322		-0.5159	0.054	-0.1818		-0.3514	0.0345	-0.2609	*	-0.4337	-0.0964	-0.2396	*	-0.4175	-0.0385
Image-Random	-0.0117		-0.1004	0.1325	0.0195		-0.0385	0.1577	0.011		-0.0618	0.0597	-0.0215		-0.1202	0.0818
Pay-Relation	0.0056		-0.0996	0.1083	-0.0058		-0.1148	0.0947	0.0486		-0.0761	0.2469	0.006		-0.0487	0.0989
Pay-Sustain	0.0112		-0.0768	0.0965	-0.0909		-0.2553	0.0225	0.0739		-0.0406	0.266	0.0134		-0.0974	0.1039
Pay-Size	-0.2309	*	-0.4992	-0.0224	-0.1814		-0.3496	0.0403	-0.1925		-0.4226	0.109	-0.2226		-0.4059	0.0039
Pay-Random	-0.0104		-0.1186	0.0864	0.0199		-0.035	0.114	0.0794		-0.0514	0.279	-0.0045		-0.1195	0.1063
Relation-Sustain	0.0056		-0.0988	0.1161	-0.0851		-0.2439	0.0846	0.0253		-0.0517	0.1016	0.0074		-0.0815	0.0439
Relation-Size	-0.2365		-0.5054	0.0571	-0.1756		-0.3709	0.0076	-0.2411	*	-0.4386	-0.0336	-0.2285	*	-0.411	-0.0627
Relation-Random	-0.016		-0.1298	0.1028	0.0257		-0.0302	0.128	0.0309		-0.0471	0.1024	-0.0105		-0.1093	0.0546
Sustain-Size	-0.2421		-0.5036	0.0009	-0.0905		-0.2951	0.1385	-0.2664	*	-0.4356	-0.0756	-0.2359	*	-0.4155	-0.0596
Sustain-Random	-0.0216		-0.1064	0.0807	0.1108		-0.0225	0.2743	0.0055		-0.0648	0.0643	-0.0178		-0.1158	0.0949
Size-Random	0.2205	*	0.0132	0.4864	0.2013	*	0.0526	0.3741	0.272	*	0.0685	0.4521	0.2181	*	0.0009	0.3932

* indicates that CI for difference does not include 0.
CAUTION: Bootstrap confidence intervals can be somewhat liberal.

Appendix X: Quartile RWA results including the industry dummy variable

The following two tables present the quartile RWA results including the industry dummy variable. The RWs the variable $Industry\_dummy$ correspond to those also presented in the tables 11 and 12 in chapter 4.2.3.

Relative Weighs

Dependent:	log(Netprofit)											
Quartile	Q1&Q2		Q3&Q4		Q1		Q2		Q3		Q4	
	RW	**RRW**	**RW**	**RRW**	**RW**	**RRW**	**RW**	**RRW**	**RW**	**RRW**	**RW**	**RWW**
Balance	0.0138	2.61%	0.0274	3.99%	0.0587	10.94%	0.0037	0.56%	0.0298	4.26%	0.0183	2.39%
Career	0.0061	1.16%	0.0119	1.73%	0.0094	1.75%	0.0089	1.35%	0.0122	1.75%	0.021	2.74%
Conditions	0.0152	2.88%	0.005	0.73%	0.0093	1.73%	0.0317	4.80%	0.0056	0.80%	0.0059	0.77%
Image	0.0128	2.42%	0.0047	0.68%	0.0351	6.54%	0.0044	0.67%	0.0105	1.50%	0.0099	1.29%
Pay	0.0179	3.39%	0.0571	8.32%	0.0173	3.22%	0.0178	2.69%	0.0448	6.41%	0.0407	5.31%
Relation	0.005	0.95%	0.0371	5.40%	0.0082	1.53%	0.0121	1.83%	0.0458	6.55%	0.0338	4.41%
Sustain	0.0413	7.82%	0.0119	1.73%	0.029	5.40%	0.068	10.30%	0.0186	2.66%	0.0056	0.73%
Industry_dummy	0.0789	14.94%	0.0563	8.20%	0.0928	17.29%	0.1601	24.24%	0.1377	19.70%	0.0923	12.05%
Size	0.3344	63.32%	0.4749	69.18%	0.2618	48.78%	0.3533	53.49%	0.3907	55.89%	0.5363	70.03%
Random	0.0027	0.51%	0.0003	0.04%	0.0152	2.83%	0.0005	0.08%	0.0034	0.49%	0.0021	0.27%
Year_dummy	Yes		Yes		Yes		Yes		Yes		Yes	
R2	0.5281		0.6865		0.5367		0.6605		0.6991		0.7658	
n	203		234		93		110		118		116	

Relative Weighs

Dependent	log(Netprofit/Employee)											
Quartile	Q1&Q2		Q3&Q4		Q1		Q2		Q3		Q4	
	RW	**RRW**	**RW**	**RRW**	**RW**	**RRW**	**RW**	**RRW**	**RW**	**RRW**	**RW**	**RWW**
Balance	0.0151	3.83%	0.0153	4.05%	0.0631	12.47%	0.0037	0.62%	0.0088	1.70%	0.0464	10.64%
Career	0.0072	1.83%	0.004	1.06%	0.0082	1.62%	0.0304	5.13%	0.007	1.35%	0.0111	2.54%
Conditions	0.0088	2.23%	0.0108	2.86%	0.0057	1.13%	0.034	5.74%	0.0102	1.97%	0.019	4.36%
Image	0.0018	0.46%	0.0027	0.72%	0.0228	4.51%	0.0229	3.86%	0.0119	2.30%	0.0041	0.94%
Pay	0.0131	3.32%	0.0583	15.44%	0.0148	2.93%	0.0175	2.95%	0.0573	11.09%	0.0145	3.32%
Relation	0.0034	0.86%	0.0104	2.75%	0.01	1.98%	0.0216	3.64%	0.0286	5.54%	0.0139	3.19%
Sustain	0.0179	4.54%	0.0142	3.76%	0.0119	2.35%	0.0967	16.31%	0.0113	2.19%	0.0097	2.22%
Industry_dummy	0.1103	27.97%	0.0589	15.60%	0.1187	23.46%	0.195	32.89%	0.1652	31.97%	0.0537	12.31%
Size	0.2101	53.27%	0.2009	53.22%	0.2271	44.89%	0.1694	28.58%	0.2146	41.53%	0.2381	54.59%
Random	0.0066	1.67%	0.002	0.53%	0.0235	4.65%	0.0015	0.25%	0.0019	0.37%	0.0258	5.91%
Year_dummy	Yes		Yes		Yes		Yes		Yes		Yes	
R2	0.3944		0.3775		0.5059		0.5928		0.5167		0.4362	
n	237		237		123		114		120		117	

Appendix XI: Data set

Data set name in R: RdataXX3

id	t	Balance	Career	Conditions	Image	Pay	Relation	Sustain	OverallSat	Random	Size	Industry	Netpro it	Netprofit/Employee	Quartile
1	2014	3 94	4.34	3.93	4.24	3 96	4.43	4.23	4.15	0.24	8.81	7	30685000.00	7117.84	4
1	2015	3.78	4.22	3.94	4.16	3 98	4 23	4.08	4.06	0.32	8.83	7	29801000.00	6340.64	4
1	2016	3.61	3.73	3.66	3.66	3 53	3.89	3.58	3.67	0.79	8 91	7	75249000.00	16010.43	4
2	2014	3 94	3.78	3.95	4.21	3 90	3.84	4.15	3.97	0.00	9.87	3	175866000.00	38231.74	3
2	2015	3 93	3.62	3.92	3.99	3.60	3.64	4.03	3.82	0.14	9.88	3	638754000.00	114472.04	3
2	2016	3.83	3.33	3.64	3.76	3.48	3.62	3.95	3.66	0.34	9 90	3	617290000.00	110625.45	3
3	2014	3 38	3.27	3.36	2.94	3.07	3 33	3.06	3.20	0.90	9 91	3	377500000.00	62916.67	1
3	2015	3.45	3.32	3.32	3.29	3.15	3.40	3.38	3.33	0.77	9 96	3	434200000.00	72366.67	1
3	2016	3.47	3.63	3.74	3.82	3.11	3.64	3.44	3.55	0.91	9 99	3	462300000.00	73380 95	1
4	2014	3.40	3.24	3.03	3.25	3 29	3 34	2.79	3.19	0.11	9.04	8	10004000.00	526 53	2
4	2015	3 54	3.46	3.35	3.46	3.46	3 54	3.33	3.45	0.74	9.04	8	13577000.00	714 58	2
4	2016	3.60	3.48	3.67	3.68	3 36	3.85	3.43	3.58	0.42	9.08	8	30803000.00	1621.21	2
5	2014	3 90	3.90	3.69	4.31	3 50	4.01	3.33	3.81	0.42	9.16	3	21938000.00	4025.32	3
5	2015	3.87	3.95	3.85	4.21	3.77	4.02	3.74	3.92	0.72	9.18	3	25152000.00	4536.80	3
5	2016	3.80	3.80	3.98	3.82	3.86	3 99	3.82	3.87	0.09	9.15	3	22469000.00	4052.85	3
6	2014	4.02	3.93	3.94	4.06	4 36	3 93	4.03	4.04	0.95	9.86	1	407000000.00	22611.11	4
6	2015	4.14	3.93	3.98	3.99	4 39	3.87	3.98	4.04	0.54	9.85	1	264000000.00	13657 53	4
6	2016	3.77	3.52	3.79	3.88	4.04	3.71	3.50	3.74	0.96	9.86	1	117000000.00	5850.00	4
7	2014	3.83	3.85	4.01	3.66	3.86	3 90	3.90	3.86	0.54	11.03	6	3123000000.00	104100.00	3
7	2015	3.77	3.77	3.93	3.64	3 91	3.83	3.79	3.81	0.46	11.06	6	3553633000.00	83005 54	3
7	2016	3.48	3.47	3.73	3.61	3 56	3.64	3.51	3.57	0.77	11.08	6	2947614000.00	71407.11	3
8	2014	3.88	4.13	3.59	4.45	3.47	4.18	4.75	4.06	0.97	8 26	3	10459213.24	5778.57	4
8	2015	4.16	4.27	3.89	4.59	3 98	4 20	4.67	4.25	0.81	8 28	3	5536141.83	2516.43	4
8	2016	4.02	4.15	4.05	4.54	3.78	4 25	4.26	4.15	0.56	8 28	3	8933827 58	4466.91	4
9	2014	3 22	3.35	3.50	4.29	3.04	3 58	3.56	3.51	0.40	8 29	3	5458818 38	4363.56	2
9	2015	3 50	3.47	3.49	3.90	3.60	3.71	3.62	3.61	0.20	8 26	3	9667610.85	9775.14	2
9	2016	3 38	3.15	3.12	3.79	2 94	3 31	3.44	3.30	0.35	8 24	3	10678518.01	8428.19	2
10	2014	4 20	4.12	4.07	4.21	4.44	4 27	3.79	4.16	0.41	9 30	6	27502677.17	14301 96	3
10	2015	3.77	3.79	4.10	3.93	3.77	3.80	3.45	3.80	0.98	9 30	6	22963455.07	11941.47	3
10	2016	3.66	3.45	3.96	3.84	3 28	3.66	3.19	3.58	0.92	9 31	6	31662538.37	30980 96	3
11	2014	3 93	3.64	3.91	4.26	3.87	3.82	4.02	3.92	0.19	9.83	3	316300000.00	26244.61	3
11	2015	3 90	3.72	3.83	4.38	4.07	3.80	4.09	3.97	0.56	9.86	3	319700000.00	25121.80	3
11	2016	3 58	3.49	3.88	4.00	3.65	3.61	3.93	3.73	0.22	9 90	3	396000000.00	29083.43	3
12	2014	4.41	3.99	4.22	4.25	3 99	4.08	4.46	4.20	0.75	9 95	6	15000000.00	4411.76	4
12	2015	4.10	3.92	4.17	4.06	4.14	3 99	4.40	4.11	0.40	9 97	6	17000000.00	5000.00	4
12	2016	3.79	3.48	3.63	3.59	3 54	3 59	3.62	3.61	0.17	10.00	6	34000000.00	10000.00	4
13	2014	3 90	3.88	4.12	3.90	4 24	3 92	3.90	3.98	0.48	10.85	1	2454000000.00	70924.86	4
13	2015	3.87	3.87	3.99	3.96	4 23	3 94	3.96	3.97	0.93	10.87	1	1361000000.00	38555 24	4
13	2016	3 92	3.81	4.05	4.01	4.18	3.89	3.84	3.96	0.88	10.92	1	3600000000.00	100558.66	4
14	2014	4.07	3.80	3.59	3.99	3.81	3.74	3.60	3.80	0.51	9.75	3	80703000.00	8319.04	3
14	2015	3 94	3.71	3.68	3.95	3 54	3.71	3.49	3.72	0.73	9.81	3	61603000.00	6350.17	3
14	2016	3.77	3.61	3.82	3.91	3.62	3.63	3.46	3.69	0.91	9.78	3	52715000.00	6047.38	3
15	2014	3 50	3.47	3.78	3.59	3.11	3.66	3.43	3.51	0.85	8.67	5	49200000.00	10813.19	1
15	2015	3 57	3.49	3.63	3.61	3.14	3.71	3.52	3.52	0.13	8.74	5	61797000.00	9655.78	1
15	2016	3.04	2.86	3.13	3.16	2.73	3 21	2.83	2.99	0.27	8.78	5	77845000.00	15581.47	1
16	2014	3 90	3.68	4.10	4.00	4.03	3.79	3.90	3.91	0.61	9.62	1	382000000.00	87695.13	4
16	2015	3 99	3.78	4.17	4.12	4.16	3.84	3.87	3.99	0.81	9.67	1	337000000.00	59164 33	4
16	2016	3 98	3.92	4.36	4.02	4 21	3 91	3.79	4.03	0.59	9.73	1	269000000.00	45904.44	4
17	2014	2.78	2.72	2.86	3.12	3.00	2.66	3.22	2.91	0.52	9.05	3	53140168.06	5405.37	1
17	2015	3.00	2.70	2.92	2.92	3 31	2.73	2.97	2.94	0.44	8 98	3	46357409.44		1
17	2016	3.42	3.01	3.14	3.09	3 28	3 28	2.86	3.15	0.55	8 90	3	107400144.10	11562.08	1
18	2014	3.60	3.39	3.33	3.20	3.47	3.72	3.62	3.48	0.72	10.03	6	16171000.00	7549.49	1
18	2015	3.67	3.46	3.61	3.09	3.88	3.69	3.24	3.52	0.50	10.07	6	17335000.00	8402.81	1
18	2016	3.15	2.89	3.03	2.65	3 31	3.11	2.95	3.01	0.12	10.09	6	17068448.17	8534.22	1
19	2014	3 57	3.41	3.32	3.17	3 36	3 57	3.68	3.44	0.60	8.66	3	53880000.00	5991.99	2
19	2015	3.83	3.60	3.68	3.62	3.47	3.73	3.75	3.67	0.80	8.73	3	45620000.00	4606.22	2
19	2016	3.47	3.05	3.57	3.33	2.89	3 51	2.91	3.25	0.69	8.89	3	60030000.00	5774.34	2
20	2014	4 26	4.18	3.82	4.36	3.88	4.13	3.64	4.04	0.01	8 31	9	12877539.69	11549 36	4
20	2015	3 39	3.80	3.78	3.92	3.68	3.68	3.54	3.68	0.89	8 31	9	12340748.46	13226 95	4
20	2016	4 34	4.44	4.36	4.59	4 57	4 33	4.05	4.38	0.03	8 33	9	16168786.14	14059.81	4
21	2014	4.17	4.14	4.08	4.37	4.40	4.17	4.26	4.23	0.32	11.24	1	5817000000.00	78006 20	4
21	2015	4.09	4.07	4.02	4.19	4 32	4.04	4.16	4.13	0.35	11.24	1	6396000000.00	80962.03	4
21	2016	3.84	3.77	3.87	4.00	4.14	3.87	3.96	3.92	0.57	11.28	1	6910000000.00	83656.17	4
22	2014	3.77	3.77	3.90	4.06	4.09	3.74	4.03	3.91	0.74	10.30	1	1047000000.00	79899 27	3
22	2015	3 91	3.87	4.07	3.97	4 29	3.86	4.09	4.01	0.40	10.37	1	1576000000.00	113340.53	3
22	2016	3.18	3.12	3.06	3.40	3.67	3.13	3.37	3.28	0.96	10.42	1	1849000000.00	125152.29	3
23	2014	2 59	2.88	3.05	3.51	3 30	3.14	3.13	3.09	0.98	8 23	3	11194923.00		1
23	2015	2.81	3.16	3.15	3.20	3 30	3 32	3.37	3.19	0.92	8 29	3	5248860.00		1
23	2016	2.63	2.81	2.73	3.31	2.76	3.00	2.71	2.85	0.98	8 31	3	10477934.00	1789.88	1
24	2014	3.06	3.56	3.45	3.75	3 34	3 56	3.76	3.50	0.34	8.64	3	14696588.29	1837.07	2
24	2015	3.15	3.34	3.33	3.45	3 24	3.41	3.60	3.36	0.17	8.68	3	1423465.02	177 93	2
24	2016	3.68	3.54	3.69	3.19	3.73	3 91	3.81	3.65	0.42	8.71	3	43969201.99	5496.15	2
25	2014	3 39	3.19	3.38	2.95	2.44	3.82	3.20	3.20	0.35	6.82	9	1167739.00	46.71	1
25	2015	3 36	3.47	3.21	3.28	3.00	3.63	3.30	3.32	0.24	7 35	9	2083098.41	83.32	1
25	2016	2 34	2.65	2.79	2.75	2 33	2.76	2.15	2.54	0.66	7.45	9	1488248 97	59.53	1

id	t	Balance	Career	Conditions	Image	Pay	Relation	Sustain	OverallSat	Random	Size	Industry	Netpro it	Netprofit/Employee	Quartile
26	2014	2.84	2.91	3.29	3.13	2.74	3 34	3.15	3.06	0.98	9.66	4	8219000.00	643 37	1
26	2015	3 26	3.20	3.51	3.40	3 30	3.49	3.28	3.35	0.98	9.68	4	17515000.00	1347.31	1
26	2016	2 30	2.09	2.65	2.93	2.04	2.17	2.03	2.32	0.78	9.69	4	11247000.00	780.12	1
27	2014	4 33	3.46	3.54	2.61	4.00	4.13	3.44	3.64	0.08	8 53	1	11798487.18		3
27	2015	4 27	3.60	3.71	2.79	4.06	4.05	3.72	3.74	0.72	8 54	1	495917.66		3
27	2016	3 94	3.37	3.41	3.32	3.64	3.85	3.60	3.59	0.45	8 54	1	1257608.79	262.00	3
28	2014	4.10	4.29	4.14	4.13	4 30	4 20	3.61	4.11	0.18	10.12	6	50000000.00	42123.00	3
28	2015	3 91	3.97	3.86	3.44	3.82	4.00	3.39	3.77	0.66	10.15	6	50000000.00	45537 34	3
28	2016	3.64	3.10	3.82	3.04	3.48	3.42	3.36	3.41	0.66	10.17	6	64000000.00	61657.03	3
29	2014	3.48	2.92	3.37	2.88	3.75	3.08	3.59	3.30	0.67	8 90	1	4229401.11	422 94	2
29	2015	3.76	3.32	3.62	3.28	3 92	3.45	3.83	3.60	0.14	8 96	1	4131773 50	413.18	2
29	2016	3.79	3.58	3.85	3.50	3 99	3.87	3.71	3.76	0.84	9.00	1	81758945.45	8606.20	2
30	2014	3.76	3.29	3.15	3.39	3.77	3.42	3.72	3.50	0.21	8.68	3	35918325.88	14654 56	2
30	2015	3.65	3.30	3.08	3.44	3.46	3.40	3.80	3.45	0.82	8.69	3	24572952.26	10665 34	2
30	2016	3.76	3.47	3.51	3.78	3.41	3.60	3.69	3.60	0.52	8.71	3	12287531.09	5124.07	2
31	2014	3.69	3.60	3.56	3.71	3.69	3.69	3.60	3.65	0.42	10.28	3	335800000.00	7224.15	3
31	2015	3.76	3.60	3.76	3.75	3.87	3.67	3.72	3.73	0.13	10.26	3	915000000.00	19291 99	3
31	2016	3.73	3.58	3.68	3.81	3.82	3.70	3.55	3.70	0.61	10.28	3	839000000.00	16109.83	3
32	2014	2.08	2.12	2.58	2.31	2.46	2.13	2.15	2.26	0.71	10.09	6	52390.00	48.06	1
32	2015	3.02	2.99	3.30	2.93	3.41	2 93	3.06	3.09	0.87	10.13	6	37850000.00	35046 30	1
32	2016	2.66	3.02	2.59	2.97	2.68	3.06	2.44	2.77	0.48	10.14	6	54271000.00	57368 92	1
33	2014	3 55	3.18	3.19	3.53	3.07	3.74	3.11	3.34	0.90	9.04	9	85523668.00	82472 20	1
33	2015	3.83	3.66	3.66	3.93	3.41	3 90	3.27	3.67	0.97	9.04	9	100537401.00	56672.72	1
33	2016	3.18	2.60	3.14	2.58	2 58	3.13	1.98	2.74	0.30	9.08	9	105480329.00	49825 38	1
34	2014	3.17	3.04	3.35	3.59	2 91	3 20	3.22	3.21	0.70	9 31	4	114154000.00	8868.40	1
34	2015	3.19	3.14	3.40	3.55	3.03	3 25	3.22	3.25	0.23	9 33	4	145496381.40		1
34	2016	3.08	3.02	3.41	3.45	2 97	3.17	3.05	3.16	0.68	9 35	4	188163825.00	14581.82	1
35	2014	4.04	3.90	4.12	3.76	4.19	4.12	3.68	3.97	0.63	8.87	6	11684286.00	1007.27	4
35	2015	4.03	3.73	3.81	3.54	4.08	3 95	3.60	3.82	0.91	8.64	6	35144141.00	3194.92	4
35	2016	4.17	3.92	4.18	3.73	4.04	4.07	3.82	3.99	0.93	8.83	6	28861720.00	2647.86	4
36	2014	4 21	4.14	4.28	4.48	4.02	4.10	4.32	4.22	0.74	8.65	5	6296122 34	970 58	4
36	2015	4 24	4.07	4.19	4.30	4.10	4.12	4.32	4.19	0.98	8.66	5	5915369.87	895.45	4
36	2016	4 27	4.14	4.40	4.27	4.11	4 34	4.18	4.24	0.71	8.68	5	4243863.66	642.43	4
37	2014	3.47	3.17	3.22	3.07	3.12	3.04	2.76	3.12	0.47	9.75	6	37567000.00	47795.17	1
37	2015	3.84	3.49	3.50	3.58	3.71	3 59	3.10	3.54	0.70	9.74	6	15963000.00	19325.67	1
37	2016	3 38	2.77	3.17	3.12	3.08	3.12	2.83	3.07	0.28	9.72	6	20783204.00	27346 32	1
38	2014	2 99	3.51	3.97	4.02	4 28	3 51	4.05	3.76	0.37	9.44	3	194347000.00		2
38	2015	3.13	3.52	3.82	3.85	4.11	3.49	4.05	3.71	0.73	9.49	3	200530000.00	13706.77	2
38	2016	2 59	2.94	3.13	3.52	3.65	2 96	3.39	3.17	0.08	9 53	3	200619000.00	14029 30	2
39	2014	3.40	3.31	3.53	3.71	3 22	3.46	3.59	3.46	0.86	9 26	7	82392000.00	5009.85	1
39	2015	3.77	3.60	3.78	3.87	3 54	3.83	3.65	3.72	0.65	9 30	7	92553000.00	5509.11	1
39	2016	3 25	3.16	2.81	2.75	2 90	3.47	2.66	3.00	0.65	9 32	7	107887000.00	6742.94	1
40	2014	4.41	4.23	4.33	4.27	4.14	4 36	4.27	4.29	0.72	8.14	1	9532227 30	5295.68	4
40	2015	4 27	4.14	4.27	3.85	4.02	4 20	4.27	4.15	0.84	8.11	1	11443692.65	6357.61	4
40	2016	3.81	3.83	3.83	3.41	3.80	3.86	3.90	3.78	0.65	8.16	1	16686256.92	9270.14	4
41	2014	3 56	3.19	3.91	3.38	2.82	3.13	3.51	3.36	0.15	12.01	6	2954000000.00	273518.52	3
41	2015	3 92	3.51	3.89	3.75	3 27	3 33	3.64	3.62	0.95	12.01	6	3189000000.00	294677.51	3
41	2016	4.04	4.13	4.39	4.33	3 39	4.06	3.80	4.02	0.66	12.14	6	963000000.00	93422 58	3
42	2014	3.77	3.75	3.88	3.43	3.89	3.85	3.90	3.78	0.22	11.11	5	4005000000.00	33700.77	3
42	2015	3.77	3.72	3.83	3.44	3.89	3.82	3.84	3.76	0.18	11.16	5	1889000000.00	16194.71	3
42	2016	3.60	3.50	3.73	3.40	3.82	3.66	3.60	3.62	0.66	11.17	5	2020000000.00	17603.64	3
43	2014	4 30	3.99	4.02	3.83	4 29	4.00	3.95	4.05	0.66	9.03	6	151574624.00	4098.16	4
43	2015	4 37	4.32	4.32	3.90	4 36	4 25	4.11	4.23	0.63	9.04	6	163643349.00	4363.82	4
43	2016	3.75	3.82	3.42	3.55	3 97	3.75	3.95	3.74	0.51	9.01	6	221161481.00	5897.64	4
44	2014	4.01	3.69	3.15	3.94	3 91	3 98	3.56	3.75	0.70	9 24	6	17500000.00	4451.79	2
44	2015	3.81	3.29	3.46	3.46	3 94	3 35	3.42	3.53	0.05	9 27	6	18000000.00	3000.00	2
44	2016	3.18	3.14	3.07	3.33	3.42	3 22	3.26	3.23	0.48	9 28	6	27000000.00	4500.00	2
45	2014	3.70	3.63	3.67	3.74	3.70	3 96	3.69	3.73	0.08	10.57	4	2177000000.00	72102.81	2
45	2015	3 39	3.40	3.45	3.53	3.40	3.62	3.59	3.48	0.90	10.58	4	1719000000.00	59275.86	2
45	2016	3 27	3.18	3.25	3.54	3.03	3.48	3.41	3.31	0.49	10.58	4	2781000000.00	95896 55	2
46	2014	3 57	3.28	3.50	3.54	3.42	3.43	3.58	3.47	0.96	9 35	1	80067000.00	7482.90	2
46	2015	3.67	3.47	3.74	3.60	3.60	3 58	3.63	3.61	0.36	9 37	1	37218000.00	3478.32	2
46	2016	3.71	3.25	3.41	3.29	3.46	3 57	2.76	3.35	0.23	9 39	1	105489000.00	8630.37	2
47	2014	2.73	2.85	2.95	3.08	2.75	3 29	3.25	2.99	0.51	7.84	4	1284847 23		1
47	2015	3.14	3.01	3.27	3.25	3.16	3 33	3.45	3.23	0.83	7 96	4	15283406.76		1
47	2016	2.79	2.71	3.09	3.21	2 52	2 93	2.79	2.86	0.47	8.00	4	8332874.12	1041.61	1
48	2014	4.16	4.35	4.24	4.70	4.13	4.45	4.20	4.32	0.35	9.05	1	65509000.00	19851 21	4
48	2015	4.13	4.25	4.14	4.59	4.13	4 26	4.16	4.24	0.50	9.07	1	119506000.00	31876.77	4
48	2016	3 91	3.75	3.90	4.20	3 97	3 96	3.52	3.89	0.60	9.17	1	82181000.00	10605 37	4
49	2014	3.86	3.48	3.73	3.63	3.75	3.65	3.56	3.67	0.89	11.31	6	213000000.00	8525.12	3
49	2015	4.03	3.83	3.97	3.81	3.89	3 93	3.86	3.90	0.82	11.39	6	399000000.00	15563.44	3
49	2016	4.02	3.71	3.82	3.44	4.02	3.87	4.02	3.84	0.90	11.40	6	323000000.00	11757.43	3
50	2014	4.05	4.17	4.04	4.32	3 97	4 37	3.75	4.10	0.08	7.10	5	869492.54	6688.40	4
50	2015	3.85	4.03	4.10	3.87	3 90	4 24	3.90	3.98	0.78	7 20	5	848071.65	6523.63	4
50	2016	4.01	3.98	4.15	4.00	4.09	4 28	4.03	4.08	0.46	7 23	5	765490.99	5888.39	4

id	t	Balance	Career	Conditions	Image	Pay	Relation	Sustain	OverallSat	Random	Size	Industry	Netpro it	Netprofit/Employee	Quartile
51	2014	3 24	3.13	3.21	3.40	3.09	3 27	3.51	3.26	0.54	9.79	3	291800000.00	918.77	1
51	2015	3 38	3.22	3.38	3.48	3 30	3.40	3.61	3.40	0.36	9.80	3	294100000.00	896 92	1
51	2016	3 31	3.20	3.40	3.53	3 29	3.41	3.48	3.37	0.60	9.82	3	367300000.00	1092.83	1
52	2014	4.19	3.38	4.06	2.88	4.08	3 58	3.58	3.68	0.08	8.87	1	21626000.00	12536.81	3
52	2015	3.83	3.79	4.20	3.80	4.05	3 94	3.95	3.94	0.09	8.84	1	3240000.00	1879.35	3
52	2016	3 52	3.28	3.71	3.22	4.03	3.62	3.58	3.57	0.84	8.81	1	17226000.00	10358 39	3
53	2014	3.78	3.26	3.67	2.46	3.84	3.43	3.48	3.42	0.47	9 90	6	166992650.00		2
53	2015	3.84	3.51	3.89	2.86	3 96	3.66	3.62	3.62	0.42	9 92	6	243306832.00	13045 94	2
53	2016	3.46	3.28	3.55	2.93	3 57	3.44	3.28	3.36	0.97	9 96	6	636368801.00	36050.80	2
54	2014	3.41	3.85	4.05	4.31	3.40	3.75	3.48	3.75	0.76	9.14	7	14180000.00	1916.22	3
54	2015	3 54	3.75	4.01	4.06	3.44	3.71	3.58	3.73	0.32	9.15	7	48310000.00	6528.38	3
54	2016	3 24	3.56	3.70	4.17	3.14	3.46	3.02	3.47	0.77	9.18	7	38149000.00	4828.38	3
55	2014	3.69	3.29	3.53	4.07	3.71	3.66	3.71	3.67	0.72	8 55	3	46264667.11	5049.63	3
55	2015	4.04	3.61	4.02	4.35	4.15	3 95	4.20	4.05	0.01	8.60	3	60709496.92	5945.50	3
55	2016	3 30	2.90	3.36	3.66	3 27	3.19	3.41	3.30	0.70	8.66	3	62825059.21	5989.61	3
56	2014	3.79	4.23	3.85	4.04	3.72	4.09	3.65	3.91	0.79	8.41	3	1244747 92	103.73	2
56	2015	4.18	4.06	3.99	4.30	3 96	4.03	3.94	4.07	0.40	8.43	3	1499448 95	124 95	2
56	2016	2 36	2.46	2.70	2.39	2 38	2.89	1.81	2.43	0.59	8.40	3	603116.08	50.26	2
57	2014	4.00	3.75	4.05	3.97	4.07	3.67	3.86	3.91	0.52	9 99	3	146300000.00	16255 56	3
57	2015	3.85	3.59	3.89	3.56	3 92	3 56	3.83	3.74	0.25	9.88	3	127800000.00	18849 56	3
57	2016	3 93	3.59	3.96	3.66	4.19	3.75	3.86	3.85	0.98	9 93	3	102300000.00	14912 54	3
58	2014	4.14	3.91	4.28	4.13	4 34	4.16	4.15	4.16	0.92	10.20	1	467000000.00	21249.49	4
58	2015	4.05	3.92	4.12	3.94	4 29	3 98	4.06	4.05	0.18	10.23	1	1205000000.00	57063.03	4
58	2016	3.63	3.38	3.69	3.46	3.83	3 52	3.71	3.60	0.69	10.29	1	1238000000.00	57756.01	4
59	2014	2 55	2.54	2.96	2.57	2 22	2.86	2.33	2.58	0.01	8.49	3	5568554.00		1
59	2015	3 31	3.26	3.34	3.45	3.11	3.43	3.09	3.28	0.14	8.49	3	5973641.00		1
59	2016	2.88	2.72	3.41	3.51	2.71	3.17	2.75	3.02	0.30	8.60	3	1226272.00	87.59	1
60	2014	4.05	4.13	4.29	4.34	3.86	4 28	3.80	4.11	0.74	8.15	7	14597839.18	2561.02	3
60	2015	4 23	4.18	4.26	4.33	3 96	4 25	3.98	4.17	0.52	8.18	7	26449870.96	4408.31	3
60	2016	3 59	3.43	3.64	3.50	3 54	3 59	2.96	3.46	0.65	8.19	7	30527920.80	4696.60	3
61	2014	3 98	3.91	4.03	4.56	3 98	3 94	4.16	4.08	0.44	9.44	7	228836143.60	32230.44	4
61	2015	4 22	4.03	4.01	4.55	4.16	4.04	4.15	4.17	0.65	9.46	7	145509087.80	19663 39	4
61	2016	4.12	4.10	4.22	4.30	4.06	4 32	4.13	4.18	0.77	9.49	7	222795497.40	24755.06	4
62	2014	3.19	3.39	3.33	3.62	3.16	3 33	3.52	3.36	0.80	8.87	3	162860000.00	10556.82	2
62	2015	3.46	3.72	3.69	3.73	3.17	3.71	3.64	3.59	0.57	8 95	3	170526000.00	10553.66	2
62	2016	3.40	3.56	3.53	3.71	3 52	3.64	3.50	3.55	0.61	8 96	3	171218000.00	10701.13	2
63	2014	3 91	3.62	3.87	4.02	3 29	3.87	4.01	3.80	0.07	9.42	4	159698000.00	22814.00	3
63	2015	4.10	3.78	3.97	3.97	3 54	3 94	4.11	3.92	0.25	9.43	4	157254167 30	22464.88	3
63	2016	3 96	3.94	3.88	4.05	3.86	4.02	3.99	3.96	0.84	9.41	4	205355660.40	26935.42	3
64	2014	4.18	4.14	4.35	3.95	4 52	4.14	4.05	4.19	0.04	10.25	6	70000000.00	39886.04	4
64	2015	4.01	4.05	3.95	3.92	4 24	3 91	4.04	4.02	0.91	10.25	6	52500000.00	28089.89	4
64	2016	3.76	3.34	3.64	3.50	3 57	3.43	3.80	3.58	0.24	10.26	6	45000000.00	25041.74	4
65	2014	4.01	3.73	4.06	3.90	3.08	3 94	3.66	3.77	0.21	9.45	7	1552698.74	70.28	3
65	2015	4.01	3.69	3.91	3.77	3 20	3.87	3.66	3.73	0.54	9.46	7	422000.00	18.52	3
65	2016	3 98	3.39	3.77	3.89	3.13	3.85	3.39	3.63	0.11	9.48	7	249862.16	10.75	3
66	2014	3.41	3.77	3.64	3.91	3.17	3 97	3.28	3.59	0.37	9.40	5	248163000.00	54030.70	1
66	2015	3.44	3.57	3.52	3.70	3 24	3.76	3.25	3.50	0.18	9.44	5	221460000.00	50712.16	1
66	2016	3.02	2.60	2.88	2.68	2.48	2 93	2.14	2.68	0.85	9.63	5	216420000.00	44293 90	1
67	2014	2.73	2.88	2.69	3.10	2.44	2 99	2.54	2.77	0.28	8.71	3	1820512 20		1
67	2015	2 96	2.98	2.95	3.06	2.62	3.05	2.68	2.90	0.73	8.75	3	18641886.20		1
67	2016	2.42	2.30	2.54	2.91	2.09	2 50	2.24	2.43	0.28	8.75	3	33434303.38	4342.12	1
68	2014	4.00	3.77	3.92	3.90	3.82	3.85	3.68	3.85	0.22	9.77	3	140700000.00	18154.84	3
68	2015	3 91	3.82	3.91	3.86	3.86	3.80	3.68	3.83	0.26	9.79	3	142600000.00	21938.46	3
68	2016	3.62	3.24	3.26	3.26	3 53	3 38	3.31	3.37	0.04	9.79	3	259600000.00	39938.46	3
69	2014	3.12	3.07	3.26	3.24	2.73	3 22	3.10	3.11	0.49	8.05	7	14998000.00	978.47	1
69	2015	3 30	3.33	3.48	3.35	3.11	3.40	3.35	3.33	0.20	8.07	7	17071000.00	1100.08	1
69	2016	3 20	3.13	3.41	3.69	2.70	3.10	3.23	3.21	0.06	8 39	7	15941000.00	1048.96	1
70	2014	3.11	3.24	3.50	3.43	3 25	3 26	2.96	3.25	0.85	8.84	3	71400000.00	21935.48	1
70	2015	2 91	2.92	2.86	3.11	3.00	2.87	2.84	2.93	0.03	8 97	3	52200000.00	10906.81	1
70	2016	2.79	2.88	3.44	4.02	2.49	3.01	2.37	3.00	0.03	8 95	3	500000.00	94.95	1
71	2014	3 52	3.54	3.36	3.52	3 23	3.45	3.77	3.48	0.12	9.44	3	52000000.00	3250.00	2
71	2015	3.61	3.69	3.52	3.60	3 53	3.60	3.95	3.64	0.86	9.45	3	85800000.00	5362.50	2
71	2016	3 36	3.43	3.37	3.27	3 32	3 55	3.85	3.45	0.99	9.48	3	122100000.00	7182.35	2
72	2014	4.12	4.20	4.18	4.48	4.13	4 22	3.97	4.19	0.14	8.86	1	97010654.39	41001 97	4
72	2015	4.10	4.20	4.16	4.42	4.04	4 23	3.93	4.15	0.27	8 90	1	74401228.83	28310 97	4
72	2016	3.86	3.96	3.79	3.93	3.83	3 93	3.78	3.87	0.61	8 97	1	113666382 30	39771 30	4
73	2014	3 36	3.40	3.62	3.79	3.63	3.64	3.67	3.59	0.40	8 93	3	3620000.00	489.19	1
73	2015	3 30	3.47	3.55	3.62	3.68	3 36	3.88	3.55	0.04	8 92	3	12809000.00	1730.95	1
73	2016	2.84	2.73	2.84	2.97	2.86	2.87	3.14	2.89	0.01	8 94	3	31292000.00	4228.65	1
74	2014	4.65	4.91	4.96	4.96	4 93	4 91	4.91	4.89	0.85	8 26	5	8384705 97	12840 28	4
74	2015	4 37	4.59	4.68	4.57	4.76	4.63	4.61	4.60	0.51	8 32	5	20961368.15	27948.49	4
74	2016	3.84	3.88	4.31	4.14	3.62	3 99	3.69	3.92	0.52	8.43	5	42497320.02	56663.09	4
75	2014	3.83	3.45	3.33	3.35	3 28	3 53	2.97	3.39	0.47	8.44	6	102603.75	18.41	2
75	2015	3.77	3.55	3.40	3.49	3.41	3.63	3.18	3.49	0.69	8.44	6	4338000.00	723.00	2
75	2016	4.15	3.39	3.90	3.14	3 39	3.73	2.96	3.52	0.38	8.44	6	4009000.00	668.17	2

id	t	Balance	Career	Conditions	Image	Pay	Relation	Sustain	OverallSat	Random	Size	Industry	Netpro it	Netprofit/Employee	Quartile
76	2014	3 57	3.61	3.53	3.81	3 52	3.61	3.72	3.62	0.24	8.83	3	140483329 30	10690.46	2
76	2015	3.66	3.74	3.57	3.92	3.66	3.71	3.86	3.73	0.61	8.80	3	105754866 50	7898.64	2
76	2016	3 27	3.28	3.50	3.68	3.15	3 39	3.23	3.36	0.64	8.77	3	58157190.95	4139.30	2
77	2014	3.68	3.36	3.48	3.59	3 33	3.44	3.42	3.47	0.07	8.69	3	12762147.18		1
77	2015	3 52	3.39	3.39	3.39	3 38	3 53	3.34	3.42	0.13	8.72	3	8962319 31		1
77	2016	3.41	3.23	3.21	3.31	3.10	3 50	3.01	3.25	0.06	8.76	3	5055252.79	4284.11	1
78	2014	4 29	4.31	4.40	4.79	4 27	4.47	4.27	4.40	0.51	9.81	6	275400000.00	154806.07	4
78	2015	4 57	4.44	4.48	4.77	4.48	4 53	4.47	4.53	0.82	9.87	6	234800000.00	120348.54	4
78	2016	4 21	4.00	4.13	4.60	3.75	4.13	3.91	4.10	0.34	9 90	6	274200000.00	140543.31	4
79	2014	4.49	4.21	4.02	4.78	4 27	4 51	3.91	4.31	0.32	8.88	1	100530647.80	46157 32	3
79	2015	4.16	3.91	3.80	4.27	3.89	3.79	3.62	3.92	0.15	8 90	1	100183000.00	45641.46	3
79	2016	3.41	2.91	3.12	3.61	3.44	3 25	3.18	3.27	0.18	8 92	1	123959593.80	55562 35	3
80	2014	3.70	3.90	3.96	3.72	3.79	4.02	3.72	3.83	0.88	8 34	7	41473865.00	31902 97	2
80	2015	3.72	3.91	3.87	3.85	3.80	3 95	3.75	3.84	0.52	8.41	7	42776018.00	35498.77	2
80	2016	3.09	2.74	2.72	2.14	3.43	3.14	2.94	2.89	0.89	8 54	7	58587648.00	47020 58	2
81	2014	3 94	3.76	3.65	3.73	3.74	3.75	3.81	3.77	0.49	10.45	1	66527000.00	16631.75	3
81	2015	4.14	3.79	3.97	4.04	3.62	3 98	3.89	3.92	0.46	10.45	1	41975000.00	10493.75	3
81	2016	3.88	3.71	4.07	4.03	3.70	3.75	3.48	3.80	0.76	10.57	1	1616940000.00	404235.00	3
82	2014	3 98	3.72	4.16	3.93	3.84	3.79	4.05	3.92	0.76	11.25	6	397000000.00	66166.67	2
82	2015	3.78	3.57	3.83	3.57	3.80	3 59	3.81	3.71	0.92	11.24	6	419000000.00	64461 54	2
82	2016	3.67	3.08	3.54	3.28	3.03	3 35	2.70	3.24	0.05	11.22	6	340000000.00	53968 25	2
83	2014	3 26	3.47	3.47	3.32	3 54	3.44	3.41	3.42	0.48	9.46	8	151810000.00	4509.97	2
83	2015	3.40	3.52	3.53	3.38	3.49	3 53	3.41	3.47	0.03	9 54	8	176811000.00	5252.70	2
83	2016	3 39	3.53	3.57	3.25	3 38	3.68	3.38	3.45	0.01	9 54	8	192126000.00	3705.06	2
84	2014	3.68	3.44	3.50	3.18	3.75	3.69	3.72	3.57	0.39	9.44	3	121195217.10	11954 55	1
84	2015	3.41	3.15	3.23	2.93	3 54	3 33	3.43	3.29	0.60	9.45	3	191151000.00	17889.66	1
84	2016	3.03	2.73	3.35	3.37	3.00	3.18	2.89	3.08	0.04	9.46	3	192837000.00	19649.17	1
85	2014	3.60	3.42	3.62	3.39	3.72	3 26	3.81	3.55	0.69	10.32	1	1662000000.00	195529.41	1
85	2015	3 50	3.31	3.48	3.21	3.63	3.19	3.91	3.46	0.62	10.35	1	1958000000.00	244536.03	1
85	2016	2.80	2.91	3.24	2.86	3 27	3.08	3.10	3.04	0.67	10.45	1	2093000000.00	261396.28	1
86	2014	3 33	3.38	3.55	3.51	3 32	3.40	3.29	3.40	0.65	10.18	1	154000000.00	15230 94	2
86	2015	3 57	3.55	3.67	3.62	3.61	3.60	3.43	3.58	0.54	10.12	1	149400000.00	18885.10	2
86	2016	3 29	3.28	3.48	3.66	3 37	3.42	3.20	3.39	0.82	10.15	1	289500000.00	62934.78	2
87	2014	3.49	3.68	3.63	3.84	3.71	3.65	3.58	3.65	0.27	9.08	3	46240000.00	5954.93	3
87	2015	3.45	3.70	3.55	3.96	3 91	3.70	3.60	3.70	0.93	9.10	3	69961000.00	7149.82	3
87	2016	3 56	3.65	3.81	3.74	3.73	3.77	3.82	3.73	0.20	9.08	3	53638000.00	5939.98	3
88	2014	4.02	3.52	4.33	3.79	3.07	3 54	3.62	3.70	0.72	9.00	3	291724000.00	123090.30	2
88	2015	3.43	3.24	3.84	3.30	3.18	3.19	3.79	3.42	0.13	9.03	3	303814000.00	121525.60	2
88	2016	3 33	3.04	3.57	3.76	3.08	3 29	3.26	3.33	0.67	9.11	3	215087000.00	87150 32	2
89	2014	4.09	3.84	4.35	4.18	3 95	3 93	3.84	4.03	0.18	9.80	6	120940210 30	13331.15	4
89	2015	4.13	4.04	4.33	4.26	4 25	4.05	4.16	4.17	0.05	9.82	6	95819706.76	11166 50	4
89	2016	4.11	3.66	4.00	4.05	4.13	3 94	3.75	3.95	0.94	9.82	6	134157752.60	13376 98	4
90	2014	3.82	3.59	3.36	2.95	4.00	3.72	3.87	3.62	0.22	11.48	6	958000000.00	62006.47	2
90	2015	3 96	3.60	3.62	3.01	4.03	3.86	3.91	3.71	0.13	11.48	6	750000000.00	43277 55	2
90	2016	3 57	3.40	3.52	3.27	3.78	3.61	3.57	3.53	0.07	11.48	6	157000000.00	9634.27	2
91	2014	4.04	3.88	3.83	3.94	4.06	3 99	3.79	3.93	0.52	8 53	3	16283000.00	4185.86	4
91	2015	4.08	4.00	4.08	4.17	4 21	4.16	3.85	4.08	0.85	8 55	3	13455000.00	2360.53	4
91	2016	4.03	3.93	4.10	3.98	3 91	4.09	3.78	3.97	0.56	8.61	3	15659000.00	2485.56	4
92	2014	3 98	3.99	3.85	4.13	4.01	4.01	4.28	4.04	0.31	10.65	3	3329000000.00	217667.06	4
92	2015	4.02	3.97	3.87	4.09	4.09	4.02	4.20	4.04	0.02	10.70	3	3512000000.00	226536.80	4
92	2016	3 57	3.64	3.60	3.99	3 56	3.73	3.64	3.68	0.11	10.73	3	4200000000.00	262549.23	4
93	2014	4.08	3.95	4.01	3.93	4 23	3 92	4.30	4.06	0.36	9.87	7	1241000000.00	146430.68	4
93	2015	3 98	3.78	4.05	3.56	4 24	3.89	4.13	3.95	0.17	9 98	7	571000000.00	67018.78	4
93	2016	4.00	3.91	3.87	3.76	4.15	4.09	4.23	4.00	0.96	10.01	7	407000000.00	45792.08	4
94	2014	4.01	4.11	4.08	4.08	4 37	4.10	4.19	4.13	0.05	9.06	1	141600000.00	20228 57	4
94	2015	4.15	4.27	4.15	4.33	4.44	4 24	4.28	4.27	0.19	9.05	1	18238000.00	2605.43	4
94	2016	4.06	3.78	4.11	4.28	4 32	3 95	4.10	4.09	0.60	9.05	1	67012000.00	9573.14	4
95	2014	4 25	4.06	4.16	4.54	4.14	4.09	4.00	4.18	0.98	9.48	1	86900000.00	16818 27	4
95	2015	4 30	4.07	3.93	4.58	4 25	4.12	4.13	4.20	0.45	9 52	1	152900000.00	28547.42	4
95	2016	3.74	3.51	3.77	4.27	3 90	3.70	3.54	3.78	0.07	9 56	1	102200000.00	18127.00	4
96	2014	3.76	3.08	3.73	3.25	3.00	3 25	3.53	3.37	0.04	9.78	1	261842000.00	26850.08	2
96	2015	3.76	3.32	3.93	3.20	3.46	3.64	3.51	3.55	0.49	9.81	1	273466000.00		2
96	2016	3 91	3.20	3.90	3.46	4.02	3.61	2.89	3.57	0.74	9.86	1	76781000.00	7672.73	2
97	2014	3 58	3.90	3.67	4.21	3 24	4.07	3.87	3.79	0.19	8.18	9	16352000.00	12202 99	3
97	2015	3 36	3.77	3.60	3.99	3 35	3.61	3.71	3.63	0.74	8 21	9	8063000.00	4206.05	3
97	2016	3.02	3.80	3.67	4.60	3 31	3.74	3.30	3.63	0.05	8.19	9	4830528.00	2415.26	3
98	2014	3 28	3.09	3.32	3.38	2.86	3 54	2.93	3.20	0.01	7.75	7	3054048.00		1
98	2015	3.41	2.90	3.19	3.18	2 95	3.40	2.96	3.14	0.76	7.78	7	5796807.00		1
98	2016	2 56	2.79	2.96	3.07	2 94	3.08	2.68	2.87	0.20	7.86	7	10354113.00	705.80	1
99	2014	3.41	3.12	3.32	3.82	3 52	3.40	3.91	3.50	0.69	9.82	1	405422945.00	405422.95	2
99	2015	3.80	3.68	3.57	4.22	3.78	3.80	3.95	3.83	0.01	9.88	1	411521000.00		2
99	2016	3.48	3.38	3.47	3.71	3.61	3 51	3.78	3.56	0.40	9 92	1	748643000.00	234390.42	2
100	2014	2 55	2.89	2.92	2.71	2.61	3 21	3.18	2.87	0.25	9 55	3	560036000.00	115566.65	1
100	2015	2 96	3.15	3.23	2.83	3.10	3 34	3.31	3.13	0.93	9.60	3	644762000.00	135968.37	1
100	2016	2 92	2.75	3.10	2.91	3.04	3 23	3.09	3.01	0.30	9.66	3	549685000.00	109937.00	1

id	t	Balance	Career	Conditions	Image	Pay	Relation	Sustain	OverallSat	Random	Size	Industry	Netpro it	Netprofit/Employee	Quartile
101	2014	3.68	3.64	3.98	3.89	3 56	3 98	3.95	3.81	0.68	10.36	6	53625000.00	12091 32	3
101	2015	4.01	4.00	4.22	4.06	3 99	4.10	4.02	4.06	0.89	10.39	6	62919000.00	14025.64	3
101	2016	3.70	3.65	3.52	3.52	3 35	3.82	3.74	3.61	0.02	10.40	6	61172601.08	13486.02	3
102	2014	3 91	3.71	3.69	4.25	3.85	3.85	4.06	3.90	0.59	9.15	1	42900000.00	4726.75	3
102	2015	3.84	3.67	3.79	4.13	3 92	3.69	3.83	3.84	0.85	9.18	1	58972000.00	6481.86	3
102	2016	3.60	3.44	3.79	3.62	3.63	3 52	3.57	3.60	0.82	9 21	1	111076000.00	11799.02	3
103	2014	4 29	3.96	3.80	4.27	4.00	3 95	3.80	4.01	0.66	8 92	1	65700000.00	18300.84	4
103	2015	4 36	4.37	4.17	4.52	4 23	4.42	4.17	4.32	0.74	9.05	1	115793000.00	30375 92	4
103	2016	3.70	3.72	3.91	3.92	3.61	3.82	3.62	3.76	0.74	9.07	1	111967000.00	29372 25	4
104	2014	3 38	3.25	3.17	3.49	3.08	3 36	3.24	3.28	0.02	9.03	4	23758506.92	2375.85	1
104	2015	3.62	3.47	3.59	3.58	3.44	3 57	3.52	3.54	0.36	9.03	4	45458024.42	4545.80	1
104	2016	3.07	3.01	3.22	3.26	3.10	3 31	3.03	3.14	0.58	8 92	4	231020652.40	18481.65	1
105	2014	3 52	3.03	3.47	3.00	3 29	3.05	3.49	3.26	0.15	8.43	6	313000000.00		1
105	2015	3.65	3.21	3.46	3.21	3 57	3 36	3.39	3.41	0.97	8 37	6	322000000.00	28475.42	1
105	2016	3.46	3.29	3.52	3.31	3 36	3.43	3.35	3.39	0.93	8 39	6	219000000.00	18814.43	1
106	2014	3 59	3.46	3.65	3.14	4.07	3.48	3.96	3.62	0.59	9.86	1	44000000.00	5450.27	2
106	2015	3.70	3.59	3.78	3.33	3.88	3.46	4.00	3.68	0.54	9.86	1	167000000.00	20574.10	2
106	2016	3 25	3.17	3.66	3.15	3 53	3.18	3.35	3.33	0.29	9 99	1	195000000.00	25177 53	2
107	2014	4.14	4.11	4.33	4.43	4.17	4.10	3.83	4.16	0.25	8.68	1	49893776.00	16631 26	4
107	2015	4 34	4.33	4.48	4.47	4 28	4 38	4.20	4.35	0.39	8.77	1	56065642.00	17293 54	4
107	2016	4.18	4.26	4.40	4.52	3 91	4 32	4.32	4.27	0.84	8.79	1	48841053.00	14566 37	4
108	2014	3 21	3.37	3.71	3.66	4.15	3.46	3.90	3.64	0.78	10.34	3	1129000000.00	22580.00	3
108	2015	3 36	3.49	3.80	3.82	4 21	3.61	4.00	3.76	0.44	10.38	3	1541000000.00	22661.76	3
108	2016	3 21	3.35	3.65	3.82	4.06	3 53	3.67	3.61	0.88	10.46	3	1343000000.00	20661 54	3
109	2014	3.83	3.64	3.68	3.89	3.76	3 91	3.81	3.79	0.49	10.54	1	1162000000.00	152453.42	2
109	2015	3.74	3.52	3.67	3.98	3.81	3.67	3.74	3.73	0.35	10.55	1	1252000000.00	166933.33	2
109	2016	3.44	2.97	3.59	3.34	3 53	3 31	3.17	3.34	0.52	10.55	1	1275000000.00	170000.00	2
110	2014	4 56	4.38	4.74	4.72	4 35	4 53	4.49	4.54	0.24	10.25	6	153700000.00	15370.00	4
110	2015	4 50	4.43	4.62	4.66	4 33	4.47	4.44	4.49	0.87	10.29	6	152500000.00	42349 35	4
110	2016	4.14	3.81	4.30	4.06	3 95	4.00	4.17	4.06	0.14	10.32	6	205800000.00	55576 56	4
111	2014	3.79	3.49	3.41	3.56	3.46	3.67	3.54	3.56	1.00	9.83	3	279000000.00	16411.76	2
111	2015	3.70	3.52	3.55	3.69	3.73	3.70	3.64	3.65	0.03	9.89	3	122000000.00	8387.76	2
111	2016	3.68	3.38	3.79	3.70	3.85	3.83	3.55	3.68	0.74	9 90	3	63000000.00	4443.19	2
112	2014	3 26	3.31	3.34	3.57	3.10	3.67	2.95	3.31	0.03	7 96	8	3513388.00	148.88	2
112	2015	3 54	3.41	3.52	3.56	3.40	3.62	3.18	3.46	0.35	8.03	8	2526525.00	107.06	2
112	2016	3.43	3.51	3.53	3.65	3 38	3.84	3.30	3.52	0.57	8.07	8	8160866.00	2040.22	2
113	2014	3.79	3.69	3.76	3.74	3.80	3.82	3.59	3.74	0.21	8.47	9	576482.49	101.14	2
113	2015	3.80	3.61	3.73	3.62	3.62	3.70	3.72	3.69	0.94	8.45	9	4894013.88	851.13	2
113	2016	3.19	3.31	3.44	3.61	3.17	3 52	3.03	3.32	0.59	8.48	9	8393563 90	1640.65	2
114	2014	3.69	3.20	3.69	3.87	2.89	3.74	2.63	3.39	0.47	8 38	9	34388026.00	10155 94	1
114	2015	3 55	3.28	3.44	3.17	2 91	3.60	2.84	3.26	0.22	8.45	9	31966875.72	8644.37	1
114	2016	2 29	2.12	2.65	2.77	2.13	2.71	1.71	2.34	0.32	8 52	9	37988186.19	37134.10	1
115	2014	3.60	3.40	3.24	3.35	3.00	3 57	3.21	3.34	0.44	8 50	8	3511000.00	413.06	1
115	2015	3 30	3.17	3.16	3.09	2 99	3 27	3.06	3.15	0.31	8.41	8	7359045.00	817.67	1
115	2016	3 36	3.03	2.77	2.92	2 54	3.18	2.47	2.90	0.60	8 56	8	87932045.00	9455.06	1
116	2014	3.67	3.37	3.75	3.19	3 59	3.43	3.68	3.53	0.79	10.42	1	148400000.00	13614.68	2
116	2015	3.67	3.50	3.80	3.42	3 96	3 56	3.83	3.68	0.73	10.58	1	120000000.00	11009.17	2
116	2016	3.46	3.27	3.32	3.82	3.85	3 27	3.21	3.46	0.69	10.58	1	156000000.00	14055 32	2
117	2014	3.83	3.93	4.25	4.24	3.48	3 90	4.11	3.96	0.33	9.13	3	41339879.91	7757.53	4
117	2015	4 35	4.36	4.35	4.42	4 23	4.42	4.39	4.36	0.42	9.16	3	26900347.47	3127.95	4
117	2016	3.61	3.75	3.58	3.93	3 30	3.61	3.57	3.62	0.20	9.18	3	104994796 50	12208.70	4
118	2014	3 25	2.93	2.99	3.32	3.17	3.01	3.12	3.11	0.96	9.19	1	27127000.00		1
118	2015	3 39	3.15	3.07	3.39	3.12	3.19	3.07	3.20	0.75	9 22	1	65164000.00		1
118	2016	2.84	2.48	2.71	3.05	2.42	2.89	2.45	2.69	0.82	9 25	1	79541000.00	10128.74	1
119	2014	4.01	4.13	4.15	4.19	4 33	4.10	4.22	4.16	0.38	9.12	7	12403000.00	15503.75	4
119	2015	4 50	4.44	4.50	4.50	4.45	4.44	4.25	4.44	0.58	9.14	7	34759000.00		4
119	2016	3.63	3.66	3.86	4.29	4.07	3.77	4.05	3.90	0.58	9 20	7	35911000.00	65056.16	4
120	2014	4.40	4.19	4.29	3.96	4 27	4 34	3.68	4.16	0.65	9.13	6	25375093.68	16019.63	3
120	2015	4.04	3.88	3.87	3.64	3.86	4.00	3.41	3.81	0.81	9.15	6	26025346.32	16693.62	3
120	2016	3.83	3.65	3.71	3.12	3 57	3.74	3.48	3.59	0.18	9 20	6	6775018.03	4345.75	3
121	2014	3 96	3.84	3.97	4.33	3.68	4.00	3.79	3.94	0.35	9.68	1	211200000.00	29139.07	3
121	2015	3.89	3.36	3.55	3.85	3.75	3.71	3.52	3.66	0.81	9.72	1	195100000.00	26806.82	3
121	2016	3 59	3.25	2.88	3.69	3.74	3 23	3.62	3.43	0.28	9.77	1	271200000.00	37525 94	3
122	2014	2.75	2.70	2.86	2.75	2.68	3.10	3.00	2.83	0.15	9.79	3	291800000.00		1
122	2015	3.09	2.99	3.19	3.03	3.10	3 39	3.39	3.17	0.45	9.80	3	294100000.00		1
122	2016	3.09	2.98	3.15	3.20	3.06	3 32	3.01	3.12	0.55	9.82	3	367300000.00	4956.82	1
123	2014	3 25	2.85	3.45	2.85	2 97	3.09	2.61	3.01	0.12	8.04	3	74037905.89	8461.47	1
123	2015	3.15	2.89	3.54	2.82	2 93	2 92	2.96	3.03	0.97	8 22	3	133193328.60		1
123	2016	2.67	2.29	3.07	2.79	2.47	2 93	2.06	2.61	0.20	8 55	3	174460857.40		1
124	2014	3.65	3.40	3.49	3.36	3 55	3.46	3.38	3.47	0.88	8 92	6	59372398.00	15161.49	2
124	2015	3 93	3.62	3.80	3.67	3.78	3.60	3.57	3.71	0.25	8.87	6	44617527.00	8598.48	2
124	2016	3 50	3.50	3.65	3.30	3.80	3 58	3.22	3.51	0.13	8.87	6	43245243.00	7839.96	2
125	2014	3.68	3.55	3.66	3.68	3.49	3.71	3.65	3.63	0.90	9.15	3	55121000.00	2385.88	2
125	2015	3.47	3.40	3.36	3.45	3.44	3.43	3.57	3.45	0.40	9.16	3	110710000.00	9395.74	2
125	2016	3.10	3.24	3.27	3.42	3 21	3 36	3.24	3.26	0.90	9.19	3	159574000.00	13542.73	2

id	t	Balance	Career	Conditions	Image	Pay	Relation	Sustain	OverallSat	Random	Size	Industry	Netpro it	Netprofit/Employee	Quartile
126	2014	3.73	3.65	3.81	4.20	3.85	3.72	3.82	3.83	0.62	9 23	1	66802000.00	37112 22	2
126	2015	3.70	3.61	3.78	3.68	3.83	3.63	3.89	3.73	0.50	9 23	1	74495000.00	34440 59	2
126	2016	3 23	2.54	2.85	3.64	3.43	3 30	3.29	3.18	0.54	9.16	1	84675000.00	49808.82	2
127	2014	3.89	3.62	3.70	3.33	3.66	3.70	3.77	3.67	0.62	11.17	1	3320394840.00	166019.74	3
127	2015	3.89	3.57	3.74	3.45	3.77	3.82	3.76	3.71	0.24	11.25	1	8854838100.00	347930.77	3
127	2016	3.87	3.96	3.72	3.67	4 30	4.02	3.95	3.93	0.04	11.32	1	8808585240.00	369642.69	3
128	2014	3.71	3.37	3.43	3.51	3.86	3 56	3.75	3.60	0.66	9.66	1	205118000.00	21048 54	2
128	2015	3.66	3.26	3.44	3.15	3 93	3 29	3.69	3.49	0.52	9.66	1	46801000.00	4811.45	2
128	2016	3 50	3.23	3.27	3.34	3.79	3 36	3.33	3.40	0.71	9.70	1	505897000.00	54397 53	2
129	2014	4.01	3.44	3.72	3.96	3.69	3.84	3.75	3.77	0.58	9.10	3	78347000.00	19626.00	2
129	2015	3.78	3.29	3.45	3.58	3 53	3.62	3.94	3.60	0.29	9.11	3	84778000.00	20497 58	2
129	2016	3.47	3.34	3.67	3.57	3.46	3 55	3.56	3.52	0.70	9.12	3	90100000.00	20717.41	2
130	2014	3.66	3.55	3.88	3.85	3.15	3.84	3.80	3.68	0.34	8.17	7	8744462.85		1
130	2015	3 52	3.29	3.60	3.30	3 23	3 58	3.47	3.43	0.32	8.19	7	9443554.08		1
130	2016	3.12	3.11	3.36	2.86	3.08	3 35	2.63	3.07	0.22	8 20	7	9414965.14	5034.74	1
131	2014	4.07	4.24	4.49	3.74	4.69	4.40	4.52	4.31	0.82	9.04	1	554602000.00	231084.17	4
131	2015	3.85	3.62	3.94	3.25	4 31	3.83	3.96	3.82	0.11	9.18	1	578402000.00	241000.83	4
131	2016	3.45	3.72	4.03	3.38	3 95	3.74	3.73	3.71	0.52	9.06	1	713412000.00	297255.00	4
132	2014	3.87	3.64	3.90	4.27	3 58	3.84	4.20	3.90	0.76	9 30	7	123000000.00	19664 27	4
132	2015	4.08	3.89	4.07	4.18	3 93	4.09	4.36	4.09	0.15	9 32	7	97000000.00	14529.66	4
132	2016	4.13	3.91	4.10	4.06	3 90	3 97	4.33	4.06	0.11	9 35	7	120000000.00	17974.84	4
133	2014	4.45	4.29	4.06	4.46	3.67	4 36	4.13	4.20	0.46	8 21	7	545069.48	20.13	3
133	2015	4 28	3.96	4.11	4.16	3.60	4.10	4.04	4.04	0.73	8 23	7	227089.19	8 96	3
133	2016	3.03	3.16	3.18	3.32	2.85	3 32	3.61	3.21	0.43	8 20	7	5366969.63	198.78	3
134	2014	2 95	2.88	2.28	2.76	2.47	2.89	2.25	2.64	0.54	8.61	3	42468200.39		1
134	2015	3 50	3.04	3.04	3.27	3.00	3 29	2.81	3.14	0.06	8.63	3	41580945.62		1
134	2016	3.15	3.46	3.28	3.31	2 96	3.61	3.08	3.26	0.28	8.69	3	36058469.96	4807.80	1
135	2014	3.80	3.92	3.75	3.95	3 91	4.00	3.85	3.88	0.11	10.48	1	193000000.00	11027 31	4
135	2015	3 92	3.98	3.94	4.18	4.18	4.06	3.92	4.03	0.88	10.44	1	871000000.00	64518 52	4
135	2016	3.81	3.84	3.86	4.14	4.00	3 94	3.87	3.92	0.96	10.45	1	70000000.00	4794.52	4
136	2014	4.09	3.49	3.75	3.34	4.41	3.60	3.80	3.78	0.83	9 31	1	76537000.00	11076 27	3
136	2015	4 26	3.98	3.87	3.98	4 22	3 98	4.01	4.04	0.00	9 33	1	2125000.00	256.02	3
136	2016	3 25	3.01	3.22	3.50	3 30	3 31	3.05	3.23	0.49	9 35	1	16317000.00	1843.73	3
137	2014	3.48	3.81	4.14	3.86	3.43	3.66	3.69	3.72	0.55	8.62	7	5940000.00	638.78	3
137	2015	3 54	3.93	4.03	3.97	3.47	3.87	3.74	3.79	0.70	8.62	7	57582000.00	6192.28	3
137	2016	3.02	3.31	3.75	3.63	3 21	3 56	3.23	3.39	0.38	8.62	7	65386970.00	6956.06	3
138	2014	3.70	3.72	3.86	3.45	3 95	3.67	3.72	3.72	0.63	10.02	1	87209000.00	6708.38	3
138	2015	3.76	3.63	3.78	3.53	4.07	3.64	3.88	3.76	0.15	10.03	1	7900000.00	607.69	3
138	2016	3.62	3.51	3.65	3.39	3.70	3.65	3.58	3.59	0.85	10.06	1	937500000.00	93750.00	3
139	2014	4 25	3.38	3.89	3.58	3.63	4.17	4.31	3.89	0.35	9.44	6	95767979.00	37033 25	4
139	2015	4 26	3.91	4.09	3.96	3 98	4 22	4.39	4.12	0.05	9.45	6	86272053.00	33016.48	4
139	2016	4 31	3.97	4.22	3.61	4.08	4.18	4.35	4.10	0.57	9.46	6	107262660.00	30734 29	4
140	2014	4.14	4.08	4.33	4.25	3 92	4.11	4.37	4.17	0.44	8 97	3	15000000.00	17730 50	4
140	2015	4 25	4.22	4.34	4.35	4.03	4.17	4.36	4.25	0.28	9.07	3	81100000.00	96090.05	4
140	2016	3.81	3.41	3.64	3.37	3 30	3 92	4.04	3.64	0.66	9.06	3	78700000.00	88826.19	4
141	2014	3.44	3.19	3.46	3.37	2 97	3.45	3.14	3.29	0.22	9.82	7	340100000.00	5398.41	1
141	2015	3 53	3.37	3.55	3.38	3 21	3 53	3.37	3.42	0.63	9.85	7	518800000.00	199538.46	1
141	2016	3.07	2.90	3.18	3.06	2.74	3 25	2.57	2.97	0.30	9 92	7	588000000.00	217777.78	1
142	2014	2.71	3.14	3.20	3.54	3.47	3.18	3.31	3.22	0.49	9.01	1	33908009.03		1
142	2015	3.00	3.28	3.37	3.48	3.74	3 28	3.78	3.42	0.75	9.05	1	37751345.75	4255.59	1
142	2016	3 20	3.10	3.22	3.72	3.40	3.15	3.20	3.28	0.34	9.10	1	75746140.17	9468.27	1
143	2014	4.00	3.70	3.62	3.64	3.81	3 94	4.33	3.86	0.08	9 37	3	12917000.00	4161.40	4
143	2015	4.13	3.74	3.76	3.84	3.85	3.87	4.35	3.93	0.89	9 34	3	10982000.00	3499.68	4
143	2016	4 22	3.89	4.21	4.44	3.88	4.06	4.05	4.11	0.16	9 33	3	11548992.00	3545.90	4
144	2014	3 28	2.78	3.08	3.01	2.60	3.14	3.18	3.01	0.03	9.89	4	232553000.00		1
144	2015	3.42	2.86	3.35	2.99	2.64	3 21	3.27	3.11	0.08	9.89	4	208903000.00		1
144	2016	2.86	2.34	2.57	2.90	1 99	2.62	2.24	2.50	0.63	9 91	4	288594000.00	144297.00	1
145	2014	3.45	3.43	3.31	3.21	3 38	3 39	3.03	3.31	0.28	9 26	8	291100000.00	6769.77	1
145	2015	3.46	3.38	3.41	3.31	3.40	3 54	3.19	3.38	0.18	9 21	8	75500000.00	5033.33	1
145	2016	3.17	3.28	3.26	3.13	3.19	3 21	3.23	3.21	0.54	9.16	8	41100000.00	1079.93	1
146	2014	3 93	3.89	3.99	4.03	4.15	3 94	3.92	3.98	0.84	9 90	1	581683000.00	41548.79	3
146	2015	3 91	3.75	3.82	3.73	4.05	3.81	3.60	3.81	0.88	9.89	1	21796000.00	1556.86	3
146	2016	3 96	3.68	4.11	3.88	3 91	3.75	3.94	3.89	0.47	9 94	1	275300000.00	19664 29	3
147	2014	4.06	3.82	3.74	4.19	4.07	3 95	3.68	3.93	0.66	9 30	7	210372817 50	84149.13	3
147	2015	4.13	4.06	3.94	4.15	4.19	4.09	3.78	4.05	0.62	9 33	7	115531745 30	20448.10	3
147	2016	3.76	3.59	3.90	3.76	3.74	3.72	3.26	3.68	0.46	9 32	7	210184040 30	35624.41	3
148	2014	3 56	3.14	3.27	3.37	3.14	3.40	3.19	3.30	0.36	9 21	1	137264000.00	40371.76	1
148	2015	3.61	3.53	3.70	3.68	3.61	3 54	3.61	3.61	0.99	9 20	1	71718000.00	20490.86	1
148	2016	2 99	3.14	3.05	3.00	3 53	3 33	3.20	3.18	0.93	9 21	1	132933000.00	12660 29	1
149	2014	3 57	3.53	3.93	4.05	3.63	3.60	3.79	3.73	0.65	8.80	1	62071676.00	103452.79	2
149	2015	3 51	3.59	3.78	3.96	3.77	3.63	3.75	3.71	0.01	8 53	1	122006401.00	141374.74	2
149	2016	3.15	2.97	3.46	3.65	3.45	3 21	2.82	3.24	0.36	8.61	1	71061133.00	66041 95	2
150	2014	3.08	3.00	3.20	2.88	3 20	3 23	2.80	3.06	0.99	9 28	8	61500000.00	2294.35	1
150	2015	3 36	3.26	3.42	3.18	3 58	3.45	3.07	3.33	0.01	9 29	8	71340000.00	2498.34	1
150	2016	3.12	3.03	3.00	2.98	3 30	3.18	2.96	3.08	0.59	9 30	8	90075000.00	2808.61	1

id	t	Balance	Career	Conditions	Image	Pay	Relation	Sustain	OverallSat	Random	Size	Industry	Netpro it	Netprofit/Employee	Quartile
151	2014	3.48	3 21	3.85	2.78	3.74	3 24	3.41	3.39	0.16	9.81	1	2830875000.00	343136.36	2
151	2015	3.41	3 25	3.65	2.92	3 90	3 24	3.42	3.40	0.12	9.73	1	1608871000.00	190624.53	2
151	2016	3 59	3 26	3.84	3.57	3.77	3.41	3.32	3.54	0.17	9.75	1	2105686000.00	233965.11	2
152	2014	4.02	4.04	4.28	4.19	4 23	4.13	4.29	4.17	0.79	10.48	5	2307000000.00	140687.89	4
152	2015	4.06	3 99	4.28	4.14	4 28	4.11	4.30	4.17	0.93	10.49	5	2664000000.00	153908.37	4
152	2016	3.72	3.71	3.98	3.82	3 91	3.88	3.87	3.84	0.44	10.51	5	2595000000.00	145321.16	4
153	2014	3.83	3.64	3.87	3.57	3.72	3.77	3.78	3.74	0.01	10.07	3	390000000.00	13040.43	3
153	2015	3.72	3.49	3.66	3.52	3.66	3.46	3.73	3.61	0.98	10.10	3	575000000.00	19295 30	3
153	2016	3.74	3.60	3.82	4.24	3.71	3.68	3.64	3.78	0.51	10.06	3	566000000.00	18025.48	3
154	2014	4.09	3 94	4.16	4.41	4 20	4.01	4.15	4.14	0.26	8.88	7	70524000.00	18384.78	4
154	2015	4 34	4.17	4.32	4.51	4 36	4.16	4.24	4.30	0.70	8 94	7	91779000.00	23925.70	4
154	2016	3 54	3 55	3.87	3.92	4.12	3.75	3.82	3.80	0.60	8 98	7	104820000.00	26264.09	4
155	2014	3 98	3.77	3.66	3.84	3.84	3.89	3.66	3.81	0.51	8.87	6	43453803.48	4749.05	3
155	2015	3 96	3.77	3.52	3.72	3.84	3.79	3.45	3.72	0.62	8.87	6	5067961 93	570.01	3
155	2016	3.71	3 53	3.32	3.21	3.85	3.62	3.44	3.53	0.54	8.88	6	15527220.83	1746.40	3
156	2014	2.82	3.15	3.19	3.09	2.81	3 25	2.93	3.03	0.27	9.45	9	73300000.00		1
156	2015	3.03	3.16	3.11	3.15	2.87	3 20	3.05	3.08	0.88	9 56	9	186500000.00		1
156	2016	2 95	2.85	2.99	3.62	2 54	3.12	2.31	2.91	0.83	9.61	9	70500000.00	11349.00	1
157	2014	3.47	3.15	3.11	3.44	3 30	3.18	3.51	3.31	0.22	8.75	3	125381128.00	25365 39	2
157	2015	3 52	3 23	3.21	3.70	3 25	3 27	3.51	3.38	0.66	9.08	3	109100000.00	22315.40	2
157	2016	3.77	3.64	4.07	3.96	3.66	3.71	3.74	3.79	0.08	9.08	3	131600000.00	25100.13	2
158	2014	3 95	4.06	4.19	3.90	4.09	4.00	4.01	4.03	0.21	10.01	6	19616000.00	8622.42	3
158	2015	4.14	4.12	4.04	4.05	4.10	4.05	4.20	4.10	0.68	10.03	6	18707000.00	9353.50	3
158	2016	3.63	3.48	3.19	3.76	3.44	3.46	3.74	3.53	0.11	10.03	6	18980204.00	8584.44	3

Appendix XII: R codes

XII.A: Correlation plots

```
library(ggplot2)

#Figure 5 : Financial performance-satisfaction facet score correlations
ggplot(RdataXX3, aes(x=RdataXX3$Balance, y=log(RdataXX3$Netprofit))) +
  geom_point() +
  geom_smooth(method=lm, color="Red")+
  xlab("Balance")+
  ylab("log(Netprofit)")

ggplot(RdataXX3, aes(x=RdataXX3$Balance, y=log(RdataXX3$Netprofit.Employee))) +
  geom_point() +
  geom_smooth(method=lm, color="Red")+
  xlab("Balance")+
  ylab("log(Netprofit/Employee)")

ggplot(RdataXX3, aes(x=RdataXX3$Career, y=log(RdataXX3$Netprofit))) +
  geom_point() +
  geom_smooth(method=lm, color="Red")+
  xlab("Career")+
  ylab("log(Netprofit)")

ggplot(RdataXX3, aes(x=RdataXX3$Career, y=log(RdataXX3$Netprofit.Employee))) +
  geom_point() +
  geom_smooth(method=lm, color="Red")+
  xlab("Career")+
  ylab("log(Netprofit/Employee)")

ggplot(RdataXX3, aes(x=RdataXX3$Conditions, y=log(RdataXX3$Netprofit))) +
  geom_point() +
  geom_smooth(method=lm, color="Red")+
  xlab("Conditions")+
  ylab("log(Netprofit)")

ggplot(RdataXX3, aes(x=RdataXX3$Conditions, y=log(RdataXX3$Netprofit.Employee))) +
  geom_point() +
  geom_smooth(method=lm, color="Red")+
  xlab("Balance")+
  ylab("log(Netprofit/Employee)")

ggplot(RdataXX3, aes(x=RdataXX3$Image, y=log(RdataXX3$Netprofit))) +
  geom_point() +
  geom_smooth(method=lm, color="Red")+
  xlab("Image")+
  ylab("log(Netprofit)")

ggplot(RdataXX3, aes(x=RdataXX3$Image, y=log(RdataXX3$Netprofit.Employee))) +
  geom_point() +
  geom_smooth(method=lm, color="Red")+
  xlab("Image")+
  ylab("log(Netprofit/Employee)")

ggplot(RdataXX3, aes(x=RdataXX3$Pay, y=log(RdataXX3$Netprofit))) +
  geom_point() +
  geom_smooth(method=lm, color="Red")+
```

```
  xlab("Pay")+
  ylab("log(Netprofit)")

ggplot(RdataXX3, aes(x=RdataXX3$Pay, y=log(RdataXX3$Netprofit.Employee))) +
  geom_point() +
  geom_smooth(method=lm, color="Red")+
  xlab("Pay")+
  ylab("log(Netprofit.Employee)")

ggplot(RdataXX3, aes(x=RdataXX3$Relation, y=log(RdataXX3$Netprofit))) +
  geom_point() +
  geom_smooth(method=lm, color="Red")+
  xlab("Relation")+
  ylab("log(Netprofit)")

ggplot(RdataXX3, aes(x=RdataXX3$Relation, y=log(RdataXX3$Netprofit.Employee))) +
  geom_point() +
  geom_smooth(method=lm, color="Red")+
  xlab("Relation")+
  ylab("log(Netprofit/Employee)")

ggplot(RdataXX3, aes(x=RdataXX3$Sustain, y=log(RdataXX3$Netprofit))) +
  geom_point() +
  geom_smooth(method=lm, color="Red")+
  xlab("Sustain")+
  ylab("log(Netprofit)")

ggplot(RdataXX3, aes(x=RdataXX3$Sustain, y=log(RdataXX3$Netprofit.Employee))) +
  geom_point() +
  geom_smooth(method=lm, color="Red")+
  xlab("Sustain")+
  ylab("log(Netprofit/Employee)")
```

XII.B: Quartile correlation plots

#Figure 12: Overall employee satisfaction-performance correlations – criterion net profit

```
ggplot(RdataXX3, aes(x = RdataXX3$Sum_OverallSat, y = log(RdataXX3$Netprofit))) +
  geom_point(aes(color = factor(Quartile))) +
  geom_smooth(method=lm, color="Red")+
  xlab("Overall Satisfaction")+
  ylab("log(Netprofit)")+
  theme(plot.title=element_text(size=16,face="bold"),
        axis.text.x=element_text(size=14),
        axis.text.y=element_text(size=14),
        axis.title=element_text(size=14),
        legend.title = element_text(size=14, face="bold"),
        legend.text=element_text(size=14),
        legend.position = "top",
        legend.justification = c(0,0),
        strip.text.y = element_text(hjust=0.0005,vjust = 0.5,angle=180,face="bold"))
```

 # Figure 13: Overall employee satisfaction-performance correlations – criterion net profit per employee

```
ggplot(RdataXX3, aes(x = RdataXX3$Sum_OverallSat, y = log(RdataXX3$Netprofit.Employee))) +
  geom_point(aes(color = factor(Quartile))) +
  geom_smooth(method=lm, color="Red")+
  xlab("Overall Satisfaction")+
  ylab("log(Netprofit/Employee)")+
```

```
 theme(plot.title=element_text(size=16,face="bold"),
       axis.text.x=element_text(size=14),
       axis.text.y=element_text(size=14),
       axis.title=element_text(size=14),
       legend.title = element_text(size=14, face="bold"),
       legend.text=element_text(size=14),
       legend.position = "top",
       legend.justification = c(0,0),
       strip.text.y = element_text(hjust=0.0005,vjust = 0.5,angle=180,face="bold"))
```

XII.C: Pearson correlation coefficient matrices

```
library(corrplot)

#Figure 6: Employee satisfaction facet correlation matrix
RdataCorr <- subset(RdataXX3, select=c("Balance", "Career", "Conditions", "Image", "Pay", "Relation", "Sustain"))
res <- cor(RdataCorr)
corrplot(res, type = "upper", order = "hclust", tl.col = "black", tl.srt = 45, addCoef.col="black")

#Pearson correlation coefficient matrix (see appendix V)
RdataCorr <- subset(RdataXX3, select=c("Balance", "Career", "Conditions", "Image", "Pay", "Relation", "Sustain",
"OverallSat", "log(Netprofit)", "log(Netprofit.Employee)", "Size"))
res <- cor(RdataCorr)
round(res, 2)
str(RdataCorr)
cor(RdataCorr, use = "complete.obs")
```

XII.D: Histograms

```
#Predictor variables (see appendix III)
ggplot(RdataXX3, aes(x=RdataXX3$Balance)) + geom_histogram(binwidth=0.1, color="black", fill="grey") +
xlab("Balance")
ggplot(RdataXX3, aes(x=RdataXX3$Career)) + geom_histogram(binwidth=0.1, color="black", fill="grey") +
xlab("Career")
ggplot(RdataXX3, aes(x=RdataXX3$Conditions)) + geom_histogram(binwidth=0.1, color="black", fill="grey") +
xlab("Conditions")
ggplot(RdataXX3, aes(x=RdataXX3$Image)) + geom_histogram(binwidth=0.1, color="black", fill="grey") +
xlab("Image")
ggplot(RdataXX3, aes(x=RdataXX3$Pay)) + geom_histogram(binwidth=0.1, color="black", fill="grey") +
xlab("Pay")
ggplot(RdataXX3, aes(x=RdataXX3$Relation)) + geom_histogram(binwidth=0.1, color="black", fill="grey") +
xlab("Relation")
ggplot(RdataXX3, aes(x=RdataXX3$Sustain)) + geom_histogram(binwidth=0.1, color="black", fill="grey") +
xlab("Sustain")

#Dependent variables (see appendix III)
ggplot(RdataXX3, aes(x=RdataXX3$Netprofit)) + geom_histogram(binwidth=0.1, color="black", fill="grey") +
xlab("Netprofit")
ggplot(RdataXX3, aes(x=log(RdataXX3$Netprofit))) + geom_histogram(binwidth=0.1, color="black", fill="grey") +
xlab("log(Netprofit)")
ggplot(RdataXX3, aes(x=RdataXX3$Netprofit.Employee)) + geom_histogram(binwidth=0.1, color="black",
fill="grey") + xlab("Netprofit/Employee")
ggplot(RdataXX3, aes(x=log(RdataXX3$Netprofit.Employee))) + geom_histogram(binwidth=0.1, color="black",
fill="grey") + xlab("log(Netprofit/Employee)")
```

XII.E: Boxplots

```
library(ggplot2)

#Predictor variables (see appendix IV)
ggplot(RdataXX3,aes(y=RdataXX3$Balance,x=1))+geom_boxplot() + ylab("")+xlab("Balance")+xlim(c(0,2))
ggplot(RdataXX3,aes(y=RdataXX3$Career,x=1))+geom_boxplot() + ylab("")+xlab("Career")+xlim(c(0,2))
ggplot(RdataXX3,aes(y=RdataXX3$Conditions,x=1))+geom_boxplot() + ylab("")+xlab("Conditions")+xlim(c(0,2))
ggplot(RdataXX3,aes(y=RdataXX3$Image,x=1))+geom_boxplot() + ylab("")+xlab("Image")+xlim(c(0,2))
ggplot(RdataXX3,aes(y=RdataXX3$Pay,x=1))+geom_boxplot() + ylab("")+xlab("Pay")+xlim(c(0,2))
ggplot(RdataXX3,aes(y=RdataXX3$Relation,x=1))+geom_boxplot() + ylab("")+xlab("Relation")+xlim(c(0,2))
ggplot(RdataXX3,aes(y=RdataXX3$Sustain,x=1))+geom_boxplot() + ylab("")+xlab("Sustain")+xlim(c(0,2))

#Dependent variables (see appendix IV)
ggplot(RdataXX3,aes(y=RdataXX3$Career,x=1))+geom_boxplot() + ylab("")+xlab("Career")+xlim(c(0,2))
ggplot(RdataXX3,aes(y=log(RdataXX3$Netprofit.Employee),x=1))+geom_boxplot() +
ylab("")+xlab("log(Netprofit/Employee)")+xlim(c(0,2))
```

XII.F: General RWA codes

```
library(relaimpo)
library(boot)

#Year dummy
RdataXX3$t = as.factor(RdataXX3$t)
Year_dummy <- C(RdataXX3$t, treatment)

#Industry dummy
RdataXX3$Industry= as.factor(RdataXX3$Industry)
Industry_dummy <- C(RdataXX3$Industry, treatment)

RdataXX3 <- cbind(RdataXX3, Industry_dummy)
RdataXX3 <- cbind(RdataXX3, Year_dummy)

#General RWA model: log(Netprofit)
object <- lm(log(Netprofit)~Balance + Career + Conditions + Image + Pay + Reltaion + Sustain + Year_dummy +
Industry_dummy + Size, data = RdataXX3)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = c("Year_dummy"))
RWA
boot <- boot.relimp(object, b = 1000, type = "lmg", always = c("Year_dummy"))
booteval.relimp(boot, typesel = "lmg", level = 0.9988)

#General RWA model : log(Netprofit/Employee)
object <- lm(log(Netprofit/Employee)~Balance + Career + Conditions + Image + Pay + Reltaion + Sustain +
Year_dummy + Industry_dummy + Size, data = RdataXX3)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
boot <- boot.relimp(object, b = 1000, type = "lmg", always = c("Year_dummy"))
booteval.relimp(boot, typesel = "lmg", level = 0.9988)
```

XXI.G: Quartile RWA codes

```
library(relaimpo)
library(boot)

#Creation of quartile subset datasets
Rdata_U50 = subset(RdataXX3,Sum_OverallSat <=3.63)
Rdata_O50 = subset(RdataXX3,Sum_OverallSat >3.63)
Rdata_Q1 = subset(RdataXX3,Sum_OverallSat <=3.3933)
Rdata_Q2 = subset(RdataXX3,Sum_OverallSat >3.3933 & Sum_OverallSat <=3.63)
Rdata_Q3 = subset(RdataXX3,Sum_OverallSat >3.63 & Sum_OverallSat <=3.9133)
Rdata_Q4 = subset(RdataXX3,Sum_OverallSat >3.9133)

# Criterion – net profit
#[Q1 & Q2]
Rdata_U50$t = as.factor(Rdata_U50$t)
Year_dummy <- C(Rdata_U50$t, treatment)

object <- lm(log(Netprofit)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size + Random
+ Year_dummy, data = Rdata_U50)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
boot <- boot.relimp(object, b = 1000, type = "lmg", always = c("Year_dummy"))
booteval.relimp(boot, typesel = "lmg", level = 0.9986)

#[Q3 & Q4}
Rdata_O50$t = as.factor(Rdata_O50$t)
Year_dummy <- C(Rdata_O50$t, treatment)

object <- lm(log(Netprofit)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size + Random
+ Year_dummy, data = Rdata_O50)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
boot <- boot.relimp(object, b = 1000, type = "lmg", always = c("Year_dummy"))
booteval.relimp(boot, typesel = "lmg", level = 0.9986)

#Q1
Rdata_Q1$t = as.factor(Rdata_Q1$t)
Year_dummy <- C(Rdata_Q1$t, treatment)

object <- lm(log(Netprofit)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size + Random
+ Year_dummy, data = Rdata_Q1)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
boot <- boot.relimp(object, b = 1000, type = "lmg", always = c("Year_dummy"))
booteval.relimp(boot, typesel = "lmg", level = 0.9986)

#Q2
Rdata_Q2$t = as.factor(Rdata_Q2$t)
Year_dummy <- C(Rdata_Q2$t, treatment)

object <- lm(log(Netprofit)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size + Random
+ Year_dummy, data = Rdata_Q2)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
```

```
RWA
boot <- boot.relimp(object, b = 1000, type = "lmg", always = c("Year_dummy"))
booteval.relimp(boot, typesel = "lmg", level = 0.9986)

#Q3
Rdata_Q3$t = as.factor(Rdata_Q3$t)
Year_dummy <- C(Rdata_Q3$t, treatment)

object <- lm(log(Netprofit)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size + Random
+ Year_dummy, data = Rdata_Q3)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
boot <- boot.relimp(object, b = 1000, type = "lmg", always = c("Year_dummy"))
booteval.relimp(boot, typesel = "lmg", level = 0.9986)

#Q4
Rdata_Q4$t = as.factor(Rdata_Q4$t)
Year_dummy <- C(Rdata_Q4$t, treatment)

object <- lm(log(Netprofit)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size + Random
+ Year_dummy, data = Rdata_Q4)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
boot <- boot.relimp(object, b = 1000, type = "lmg", always = c("Year_dummy"))
booteval.relimp(boot, typesel = "lmg", level = 0.9986)


# Criterion – net profit per employee
#Q1 & Q2
Rdata_U50$t = as.factor(Rdata_U50$t)
Year_dummy <- C(Rdata_U50$t, treatment)

object <- lm(log(Netprofit.Employee)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size +
Random + Year_dummy, data = Rdata_U50)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
boot <- boot.relimp(object, b = 1000, type = "lmg", always = c("Year_dummy"))
booteval.relimp(boot, typesel = "lmg", level = 0.9986)

#Q3 & Q4
Rdata_O50$t = as.factor(Rdata_O50$t)
Year_dummy <- C(Rdata_O50$t, treatment)

object <- lm(log(Netprofit.Employee)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size +
Random + Year_dummy, data = Rdata_O50)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
boot <- boot.relimp(object, b = 1000, type = "lmg", always = c("Year_dummy"))
booteval.relimp(boot, typesel = "lmg", level = 0.9986)

#Q1
Rdata_Q1$t = as.factor(Rdata_Q1$t)
Year_dummy <- C(Rdata_Q1$t, treatment)
```

```
object <- lm(log(Netprofit.Employee)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size +
Random + Year_dummy, data = Rdata_Q1)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
boot <- boot.relimp(object, b = 1000, type = "lmg", always = c("Year_dummy"))
booteval.relimp(boot, typesel = "lmg", level = 0.9986)
```

#Q2

```
Rdata_Q2$t = as.factor(Rdata_Q2$t)
Year_dummy <- C(Rdata_Q2$t, treatment)

object <- lm(log(Netprofit.Employee)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size +
Random + Year_dummy, data = Rdata_Q2)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
boot <- boot.relimp(object, b = 1000, type = "lmg", always = c("Year_dummy"))
booteval.relimp(boot, typesel = "lmg", level = 0.9986)
```

#Q3

```
Rdata_Q3$t = as.factor(Rdata_Q3$t)
Year_dummy <- C(Rdata_Q3$t, treatment)

object <- lm(log(Netprofit.Employee)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size +
Random + Year_dummy, data = Rdata_Q3)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
boot <- boot.relimp(object, b = 1000, type = "lmg", always = c("Year_dummy"))
booteval.relimp(boot, typesel = "lmg", level = 0.9986)
```

#Q4

```
Rdata_Q4$t = as.factor(Rdata_Q4$t)
Year_dummy <- C(Rdata_Q4$t, treatment)

object <- lm(log(Netprofit.Employee)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size +
Random + Year_dummy, data = Rdata_Q4)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
boot <- boot.relimp(object, b = 1000, type = "lmg", always = c("Year_dummy"))
booteval.relimp(boot, typesel = "lmg", level = 0.9986)
```

XXI.H: Extra quartile RWA codes including Industry_dummy

```
library(relaimpo)

#Criterion – net profit
#[Q1 & Q2]
Rdata_U50$t = as.factor(Rdata_U50$t)
Year_dummy <- C(Rdata_U50$t, treatment)

Rdata_U50$Industry= as.factor(Rdata_U50$Industry)
Industry_dummy <- C(Rdata_U50$Industry, treatment)

object <- lm(log(Netprofit)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size + Random
+ Industry_dummy + Year_dummy, data = Rdata_U50)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA

#[Q3 & Q4}
Rdata_O50$t = as.factor(Rdata_O50$t)
Year_dummy <- C(Rdata_O50$t, treatment)

Rdata_O50$ Industry = as.factor(Rdata_O50$ Industry)
Industry_dummy <- C(Rdata_O50$ Industry, treatment)

object <- lm(log(Netprofit)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size + Random
+ Industry_dummy + Year_dummy, data = Rdata_O50)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA

#Q1
Rdata_Q1$t = as.factor(Rdata_Q1$t)
Year_dummy <- C(Rdata_Q1$t, treatment)

Rdata_ Q1$ Industry = as.factor(Rdata_ Q1$ Industry)
Industry_dummy <- C(Rdata_ Q1$ Industry, treatment)

object <- lm(log(Netprofit)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size + Random
+ Industry_dummy + Year_dummy, data = Rdata_Q1)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA

#Q2
Rdata_Q2$t = as.factor(Rdata_Q2$t)
Year_dummy <- C(Rdata_Q2$t, treatment)

Rdata_ Q2$ Industry = as.factor(Rdata_ Q2$ Industry)
Industry_dummy <- C(Rdata_ Q2$ Industry, treatment)

object <- lm(log(Netprofit)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size + Random
+ Industry_dummy + Year_dummy, data = Rdata_Q2)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA

#Q3
```

```
Rdata_Q3$t = as.factor(Rdata_Q3$t)
Year_dummy <- C(Rdata_Q3$t, treatment)

Rdata_ Q3$ Industry = as.factor(Rdata_ Q3$ Industry)
Industry_dummy <- C(Rdata_ Q3$ Industry, treatment)

object <- lm(log(Netprofit)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size + Random
+ Industry_dummy + Year_dummy, data = Rdata_Q3)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA

#Q4
Rdata_Q4$t = as.factor(Rdata_Q4$t)
Year_dummy <- C(Rdata_Q4$t, treatment)

Rdata_ Q4$ Industry = as.factor(Rdata_ Q4$ Industry)
Industry_dummy <- C(Rdata_ Q4$ Industry, treatment)

object <- lm(log(Netprofit)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size + Random
+ Industry_dummy + Year_dummy, data = Rdata_Q4)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA

#Criterion – net profit per employee
#Q1 & Q2
Rdata_U50$t = as.factor(Rdata_U50$t)
Year_dummy <- C(Rdata_U50$t, treatment)

Rdata_U50$Industry= as.factor(Rdata_U50$Industry)
Industry_dummy <- C(Rdata_U50$Industry, treatment)

object <- lm(log(Netprofit.Employee)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size +
Random + Industry_dummy + Year_dummy, data = Rdata_U50)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA

#Q3 & Q4
Rdata_O50$t = as.factor(Rdata_O50$t)
Year_dummy <- C(Rdata_O50$t, treatment)

Rdata_O50$Industry= as.factor(Rdata_O50$Industry)
Industry_dummy <- C(Rdata_O50$Industry, treatment)

object <- lm(log(Netprofit.Employee)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size +
Random + Industry_dummy + Year_dummy, data = Rdata_O50)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
#Q1
Rdata_Q1$t = as.factor(Rdata_Q1$t)
Year_dummy <- C(Rdata_Q1$t, treatment)

Rdata_ Q1$ Industry = as.factor(Rdata_ Q1$ Industry)
Industry_dummy <- C(Rdata_ Q1$ Industry, treatment)
```

```
object <- lm(log(Netprofit.Employee)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size +
Random + Industry_dummy + Year_dummy, data = Rdata_Q1)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
```

#Q2

```
Rdata_Q2$t = as.factor(Rdata_Q2$t)
Year_dummy <- C(Rdata_Q2$t, treatment)

Rdata_ Q2$ Industry = as.factor(Rdata_ Q2$ Industry)
Industry_dummy <- C(Rdata_ Q2$ Industry, treatment)

object <- lm(log(Netprofit.Employee)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size +
Random + Industry_dummy + Year_dummy, data = Rdata_Q2)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
```

#Q3

```
Rdata_Q3$t = as.factor(Rdata_Q3$t)
Year_dummy <- C(Rdata_Q3$t, treatment)

Rdata_ Q3$ Industry = as.factor(Rdata_ Q3$ Industry)
Industry_dummy <- C(Rdata_ Q3$ Industry, treatment)

object <- lm(log(Netprofit.Employee)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size +
Random + Industry_dummy + Year_dummy, data = Rdata_Q3)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
```

#Q4

```
Rdata_Q4$t = as.factor(Rdata_Q4$t)
Year_dummy <- C(Rdata_Q4$t, treatment)

Rdata_ Q4$ Industry = as.factor(Rdata_ Q4$ Industry)
Industry_dummy <- C(Rdata_ Q4$ Industry, treatment)

object <- lm(log(Netprofit.Employee)~Balance + Career + Conditions + Image + Pay + Relation + Sustain + Size +
Random + Industry_dummy + Year_dummy, data = Rdata_Q4)
summary(object)
RWA=calc.relimp(object, type = "lmg", always = "Year_dummy")
RWA
```

XXI.I: RWA figures

```
library(ggplot2)

#Figure 8: General RWA model bar plots with CI for net profit
RdataNetprofit = subset(RdataXX3_NetprofitRWAResults,  Dep<2)
p <- ggplot(RdataNetprofit,
          aes(fill=Group, y=Relative.Weight, x=Predictor)) +
  geom_bar( stat="identity", position="dodge", width = 0.9) +
  geom_errorbar(aes(ymin=LowerLimit, ymax=UpperLimit),width=0.2,cex=0.5, position=position_dodge(.9)) +
  xlab('Employee satisfaction facet')+ ylab("Relative weight with Bonferroni-adjusted 95% CI") +
  theme(plot.title=element_text(size=16,face="bold"),
        axis.text.x=element_text(size = 12),
        axis.title=element_text(size=12),
        legend.title = element_text(size=12, face="bold"),
        legend.text=element_text(size=12),
        legend.position = c("top"),
        legend.justification = c("left"),
        strip.text.y = element_text(hjust=0.0005,vjust = 0.5,angle=180,face="bold"))
p + labs(fill = "Group: Netprofit")

#Figure 9: General RWA model bar plots with CI for net profit per employee
 RdataNetprofit = subset(RdataXX3_Netprofit.EmployeeRWAResults,  Dep>1)
p <- ggplot(RdataNetprofit,
          aes(fill=Group, y=Relative.Weight, x=Predictor)) +
  geom_bar( stat="identity", position="dodge", width = 0.9) +
  geom_errorbar(aes(ymin=LowerLimit, ymax=UpperLimit),width=0.2,cex=0.5, position=position_dodge(.9)) +
  xlab('Employee satisfaction facet')+ ylab("Relative weight with Bonferroni-adjusted 95% CI") +
  theme(plot.title=element_text(size=16,face="bold"),
        axis.text.x=element_text(),
        axis.title=element_text(size=12),
        legend.title = element_text(size=12, face="bold"),
        legend.text=element_text(size=12),
        legend.position = "top",
        legend.justification = c("left"),
        strip.text.y = element_text(hjust=0.0005,vjust = 0.5,angle=180,face="bold"))
p + labs(fill = "Group: Netprofit/Employee")

#Figure 10: General RWA model test of statistical significance for net profit
RdataNetprofit = subset(RdataXX3_NetprofitRWAResults_DIFF,  Dep<2)
p = ggplot(data=RdataNetprofit,
          aes(x = Group,y = Relative.Weight, ymin = LowerLimit, ymax = UpperLimit ))+
  geom_pointrange(aes(col=Group))+
  geom_hline(aes(fill=Group),yintercept = 0, linetype=2) +
  xlab('Employee Satisfaction Facet')+ ylab("Relative weight with Bonferroni-adjusted CI at the 95% level") +
  geom_errorbar(aes(ymin=LowerLimit, ymax=UpperLimit,col=Group),width=0.3,cex=0.5) +
  facet_wrap(~Predictor,strip.position="left",nrow=7) +
  theme(plot.title=element_text(size=16,face="bold"),
        axis.text.y=element_blank(),
        axis.ticks.y=element_blank(),
        axis.text.x=element_text(size=10),
        axis.title=element_text(size=12),
        legend.text=element_text(size=12),
        legend.title = element_text(size=12, face="bold"),
        legend.position = "top",
        legend.justification =c(0,0),
        strip.text.y = element_text(hjust=0.0005,vjust = 0.5,angle=180,face="bold")) +
  coord_flip()
```

```
p

#Figure 11: General RWA model test of statistical significance for net profit per employee
RdataEmp = subset(RdataXX3_ Netprofit.EmployeeRWAResults_DIFF,  Dep>1)
p = ggplot(data=RdataEmp,
        aes(x = Group,y = Relative.Weight, ymin = LowerLimit, ymax = UpperLimit ))+
  geom_pointrange(aes(col=Group))+
  geom_hline(aes(fill=Group),yintercept = 0, linetype=2) +
  xlab('Employee Satisfaction Facet')+ ylab("Relative weight with Bonferroni-adjusted CI at the 95% level") +
  geom_errorbar(aes(ymin=LowerLimit, ymax=UpperLimit,col=Group),width=0.3,cex=0.5) +
  facet_wrap(~Predictor,strip.position="left",nrow=7) +
  theme(plot.title=element_text(size=16,face="bold"),
        axis.text.y=element_blank(),
        axis.ticks.y=element_blank(),
        axis.text.x=element_text(size=10),
        axis.title=element_text(size=12),
        legend.text=element_text(size=12),
        legend.title = element_text(size=12, face="bold"),
        legend.position = "top",
        legend.justification =c(0,0),
        strip.text.y = element_text(hjust=0.0005,vjust = 0.5,angle=180,face="bold")) +
  coord_flip()
p

#Figure 13: Quartile RWA model bar plots with CI for net profit
RdataNetprofit = subset(RdataXX3_NetprofitQuartileResults,  Dep<2)
p <- ggplot(RdataNetprofit,
          aes(fill=Group, y=Relative.Weight, x=Predictor)) +
  geom_bar( stat="identity", position="dodge", width = 1) +
  geom_errorbar(aes(ymin=LowerLimit, ymax=UpperLimit),width=0.2,cex=0.5, position=position_dodge(.9)) +
  xlab('Employee satisfaction facet')+ ylab("Relative weight with Bonferroni-adjusted 95% CI") +
  theme(plot.title=element_text(size=16,face="bold"),
        axis.text.x=element_text(),
        axis.title=element_text(size=12),
        legend.title = element_text(size=12, face="bold"),
        legend.text=element_text(size=12),
        legend.position = "top",
        strip.text.y = element_text(hjust=0.0005,vjust = 0.5,angle=180,face="bold"))
p + labs(fill="Netprofit - Employee satisfaction group:")

#Figure 14: Quartile RWA model bar plots with CI for net profit per employee
RdataNetprofit = subset(RdataXX3_ Netprofit.EmployeeQuartileResults,  Dep>1)
p <- ggplot(RdataNetprofit,
          aes(fill=Group, y=Relative.Weight, x=Predictor)) +
  geom_bar( stat="identity", position="dodge", width = 1) +
  geom_errorbar(aes(ymin=LowerLimit, ymax=UpperLimit),width=0.2,cex=0.5, position=position_dodge(.9)) +
  xlab('Employee satisfaction facet')+ ylab("Relative weight with Bonferroni-adjusted 95% CI") +
  theme(plot.title=element_text(size=16,face="bold"),
        axis.text.x=element_text(),
        axis.title=element_text(size=12),
        legend.title = element_text(size=12, face="bold"),
        legend.text=element_text(size=12),
        legend.position = "top",
        strip.text.y = element_text(hjust=0.0005,vjust = 0.5,angle=180,face="bold"))
p + labs(fill="Netprofit/Employee - Employee satisfaction group:")
```

#Figure 15: Grouped test of statistical significance for net profit

```
RdataNetprofit = subset(RdataXX3_ NetprofitQuartileResults_DIFF,  DepNr<2)
p = ggplot(data=RdataNetprofit,
          aes(x = Group,y = Relative.Weight, ymin = LowerLimit, ymax = UpperLimit ))+
  geom_pointrange(aes(col=Group))+
  geom_hline(aes(fill=Group),yintercept = 0, linetype=2) +
  xlab('Employee Satisfaction Facet')+ ylab("Relative weight with Bonferroni-adjusted CI at the 95% level") +
  geom_errorbar(aes(ymin=LowerLimit, ymax=UpperLimit,col=Group),width=0.3,cex=0.5) +
  facet_wrap(~Predictor,strip.position="left",nrow=7) +
  theme(plot.title=element_text(size=16,face="bold"),
        axis.text.y=element_blank(),
        axis.ticks.y=element_blank(),
        axis.text.x=element_text(size=10),
        axis.title=element_text(size=12),
        legend.text=element_text(size=12),
        legend.title = element_text(size=12, face="bold"),
        legend.position = "top",
        legend.justification =c(0,0),
        strip.text.y = element_text(hjust=0.0005,vjust = 0.5,angle=180,face="bold")) +
  coord_flip()
p + labs(color="Netprofit - Employee satisfaction group:")
```

#Figure 16: Grouped test of statistical significance for net profit per employee

```
RdataEmp = subset(RdataXX3_ Netprofit.EmployeeQuartileResults_DIFF,  DepNr>1)
p = ggplot(data=RdataEmp,
          aes(x = Group,y = Relative.Weight, ymin = LowerLimit, ymax = UpperLimit ))+
  geom_pointrange(aes(col=Group))+
  geom_hline(aes(fill=Group),yintercept = 0, linetype=2) +
  xlab('Employee Satisfaction Facet')+ ylab("Relative weight with Bonferroni-adjusted CI at the 95% level") +
  geom_errorbar(aes(ymin=LowerLimit, ymax=UpperLimit,col=Group),width=0.3,cex=0.5) +
  facet_wrap(~Predictor,strip.position="left",nrow=7) +
  theme(plot.title=element_text(size=16,face="bold"),
        axis.text.y=element_blank(),
        axis.ticks.y=element_blank(),
        axis.text.x=element_text(size=10),
        axis.title=element_text(size=12),
        legend.text=element_text(size=12),
        legend.title = element_text(size=12, face="bold"),
        legend.position = "top",
        legend.justification =c(0,0),
        strip.text.y = element_text(hjust=0.0005,vjust = 0.5,angle=180,face="bold"))+
  coord_flip()
p + labs(color="Netprofit/Employee - Employee satisfaction group:")
```

Stand: 2010-07-21

Einverständniserklärung zur Online-Veröffentlichung einer Abschlussarbeit auf dem Dokumentenserver der HAW Hamburg

Autor/in (Name, Vorname): Almehed, Emma

Titel der Abschlussarbeit: A quantitative analysis of the relationship between employee satisfaction and financial performance in large-sized German firms

Art der Abschlussarbeit (Bachelor-, Master- oder Diplomarbeit): Masterarbeit

Fakultät: Business & Social Sciences

Department: Business

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