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The Effects of Incentive Compensation on Moral Awareness - An Explorative Study

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Abstract

In the aftermath of the financial crisis 2008, numerous experts have offered explanations to what actually caused this massive collapse of the world economy. This paper explores an alternative suggestion. Using data from 178 alumni from a business school in Sweden, we empirically test if formula bonuses lower moral awareness and whether subjectivity as a basis for evaluation mitigates the predicted negative side effects. We have not found evidence to support that formula bonuses lower moral awareness. However, results suggest that alumni with both subjective and formula bonuses demonstrate higher moral awareness than alumni with only formula bonuses. This explorative study contributes specifically to the research on how moral awareness is affected by the different parts in the compensation package and more generally to the literature on how reward schemes affect behaviour.

Keywords: incentive compensation, moral awareness, formula bonuses, subjective bonuses

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1. INTRODUCTION

Throughout history, there have been numerous breaches of ethics within the corporate society where Enron and Arthur Anderson typify one of the more recent cases. As a consequence of scandals like Enron in the early 2000s, interest in corporate governance increased drastically (Merchant & Van der Stede, 2007). Numerous legislative measures were taken in order to prevent similar catastrophes. In 2002 the Sarbanes-Oxley Act was passed in the US, and in Europe similar steps have been taken by the European Commission e.g. by creating an agenda to modernize company law and enhancing corporate governance (McCahery & Khachaturyan, 2009). However, despite these initiatives history seems to repeat itself and in 2008 the world was hit by, what is commonly described as, 'the worst recession since the second world war'.[1] In the aftermath of the financial crisis, a discussion about what actually caused this massive collapse of the world economy has been and still is a hot topic.

One of the first observable signs of the crisis was the huge credit loss in the financial sector. A common explanation is that mortgage lenders and brokers granted sub-prime mortgages without following normal credit rules and without sensible documentation (Highsmith, 2008). The ignorance of rules could possibly stem from the fact that mortgage brokers are traditionally paid only, or almost only, on commission.[2] The pay-for-performance system implies that mortgage brokers have a strong self-interest in generating new loans.

Patterns like this, which begin with simple violations of behavioural norms, that much later emerges as concrete harm, can be found in many of the recent scandals (Reynolds, 2006). A low moral awareness (a person's ability to recognize a moral issue in a situation) among brokers and lenders could possibly explain this type of behaviour. Research shows that result-oriented people, in comparison to rule-oriented people, demonstrate lower moral awareness when a rule or norm is infringed (Reynolds, 2006). Strictly quantitative incentive compensation systems, such as formula bonuses, are commonly described as fostering result-oriented people (see e.g. Merchant & van der Stede, 2007), and it is therefore relevant to examine its impact on moral awareness. A system based on subjective evaluation, on the other hand, is frequently used to alleviate many of the negative side-effects with tying quantitative metrics to compensation (Salter, 1973, Gibbs et.al., 2004, Tahir, 2007). Thus, it is interesting to study how moral awareness is affected by different parts of the bonus package.

Following the crisis, critics raised claims for stricter regulation of the financial sector (see e.g. Caruana, 2009; Hall, 2009). Considering the discussion above, we find reasons to believe that the inadequate effects of the current regulations may call for alternative actions. However, if the individuals who are affected by the regulations are unable to recognize the moral problem in breaking the rules, and poorly designed bonus systems feed this unawareness, the focus might partly be wrong. Even though further regulation may be necessary, complementary investigations on potential contradictive effects of incentive compensation systems could contribute to research within management control.

Pay-for-performance and quantitative incentive compensation programs are not uncontroversial areas within the field of management control. It has been subject to numerous studies throughout the years and an entire academic journal, *Compensation & Benefits Review,* is devoted to research in this particular area. The dysfunctional effects of incentive compensation systems are a frequently recurring issue in this research area. However, the effects on moral awareness have not been examined previously. Findings concerning this

[1] A Google search on 091117 of the quote: 'the worst recession since the second world war' gives 57000 hits and out of the 50 first hits 48 is talking about the current recession.

[2] The website www.mortgagebrokertraining.com about mortgage broker salaries.

relationship would add more complexity to the debate, and have important implications not only for the specialized field of incentive compensation, but for corporate governance in general. The purpose of this explorative paper is, therefore, to empirically test if formula bonuses lower moral awareness and whether subjectivity as a basis for evaluation mitigates these predicted negative side effects.

The paper is organized in six sections. Following the introduction, in section 2, we present previous research within the field of incentive compensation and describe the theoretical framework for analyzing moral awareness. In section 3, we outline the sample and the method used to carry out the study. The empirical results of the study are provided in section 4. Following the discussion of the results in section 5, we conclude the paper in section 6.

2. THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

Incentive Compensation- A Review

Reaching as far back as the 18th century when Adam Smith wrote 'The Wealth of Nations', incentive compensation has been used to create goal congruence between company owners and managers (Crowther & Martinez, 2007). The problem of goal incongruence, which assumes that managers will act in their own interest rather than that of the owners, is widely discussed within the agency theory (Eisenhardt, 1989). The agency theory contains two different viewpoints, the shareholder and the stakeholder perspective, but both perspectives have one feature in common; that managers are assumed to act on behalf of others. Managers do so, however, not as an act of kindness but rather because they expect to be rewarded for their effort (Crowther & Martinez, 2007). Consequently, creating reward schemes that motivate managers to attain desired goals is an important task and comprehensive research is devoted to the effect of reward schemes on managerial behaviour (see e.g. Holmstrom & Milgrom, 1987; Jensen & Murphy, 1990; Aggarwal & Samwick, 2003; Brown, 2008).

An incentive can be defined as an 'inducement or supplemental reward that serves as a motivational device for a desired action or behaviour'[3]. It can be both positive (rewarding good performance) and negative (punishing poor performance). Furthermore, incentives can be monetary, or non-monetary such as recognition, learning and increased responsibility (Armstrong, 2007). Monetary rewards is the most commonly used incentive tool and according to Jensen & Murphy (1990), non-monetary rewards can even encourage top managers to take actions that reduce productivity and harm shareholders. They argue that monetary compensation and stock ownership is indeed the most efficient incentive tool. Following this trend-setting article there has been an increase in executive compensation (Harris, 2008).

Moreover, the use of different types of variable pay, for example through stock options, has expanded substantially from the early 1990s (Hall & Murphy, 2003). There are numerous ways to construct bonus schemes that include variable pay. The rewards can be coupled to short-term performance measures (one year or less) as well as long-term performance measures (more than one year). Short-term performance measures are usually linked to financial incentives, e.g. sales, net profits, or operating income. The purpose of this type of short-term incentives is to differentiate pay, hence rewarding the best performing employees. Long-term incentives partly serve the same purpose, but additionally aim to attract and retain talented employees. The most commonly used long-term incentives are equity-based, rewarding employees in relation to the firm's stock value (Merchant & Van der Stede, 2007).

[3] www.businessdictionary.com Retrieved on 2009 November 25

According to Merchant & Van der Stede (2007), the possibility of using incentive compensation as a management control instrument present three major benefits: *informational* in that it emphasizes important performance measures, *motivational* giving employees additional motivation to perform certain tasks and *personal-related* when trying to retain well performing employees or searching for specific qualities among potential future employees. More easily put, the purpose of incentive compensation can be described as a means to attract, retain and motivate employees as well as align compensation with firm performance (Pfeffer & Sutton, 2006).

Previous studies have established a classification of the bases for incentive systems. According to this classification, a bonus award can be determined on the basis of a strict formula, e.g. a percentage of the firm's profit. In this study, the terms 'formula bonus', 'quantitative metrics' and 'quantitative incentive system' will be used interchangeably to describe such incentives. Alternatively, a bonus can be determined by a subjective assessment from the manager's superior, or by combining these two methods (Gupta & Govindarajan, 1986; Van der Stede, 2003). The former method is by far the most popular, and it is often referred to as a part of the broader concept 'results control', whereas the latter is more comprehensive and typically includes many aspects of the overall-performance (Gupta & Govindarajan, 1986; Gibbs et.al., 2009).

The Dysfunctional Effects of Incentive Compensation in General

Researchers and practitioners disagree on whether the positive effects of incentive compensation actually exceed its shortcomings. Pfeffer & Sutton (2006) argues that the complexity of incentive schemes raises the risk that employees misinterpret the signals, hence encouraging incorrect behaviour. Furthermore, differences in incentive compensation tend to attract different types of people. They argue that it is preferred to attract employees through other motivational means than financial incentives. Khurana & Nohria (2008) offer an alternative solution: to label and educate managers as professionals, similar to doctors and lawyers. Advancing management into a profession, governed by codes of conduct instead of personal incentives, will create an unspoken social contract of trust to other members of society. Klaus Schwab (2008), founder of World Economic Forum, exemplifies his view of the current professional ethos in the following way:

'When I had surgery a few years ago, I knew very well that my future quality of life would be dependent to a large extent on the qualifications of the surgeon. This is why I sought an expert who was the best in his profession. I naturally assumed that I was in the hands of a doctor who would apply his most professional skills without claiming that he would like to have a share of my future income - since, of course, this would be dependent on his knowhow - in addition to his remuneration.' (Klaus Schwab, 2008, p.1)

It is not only the occurence, but also the size of incentive compensation that has been subject to extensive criticism. Examining the growth of US executive pay during the period 1993-2003, Bebchuk & Grinstein (2005) show that growth in pay can not only be explained by changes in firm size, performance, and industry classification. Murthy (2006) describes the situation in the late 1990s and early 2000s as filled with 'reward-hungry employees following illegal orders without a murmur' (Murthy, 2006, p.3). He further argues that the disproportionate pay of senior management is part of a major failure in governance. The most excessive salaries, that have been focus for this debate, are almost always a result of non-regulated bonus systems, without caps. Mackey (2009) argues that the ignorance of 'internal equity'- the ratio between the highest paid and the lowest paid in an organization- leads to a

risk of losing dedication and focus from the own staff. A small gap demonstrates solidarity, which according to Mackey (2009) improves performance throughout the workplace.

The Dysfunctional Effects of Formula Bonuses

The most intense criticism towards incentive compensation has been directed towards the use of quantitative metrics as a basis for evaluation, and we present some of the most common arguments below.

Incentives indeed have a motivational effect on behaviour, but sometimes not the intended behaviour (Pfeffer & Sutton, 2006). When AT&T tried to improve performance among programmers, they tied payment to the number of lines of codes produced. The result became programs of impressive, but completely unnecessary, length (Heath & Heath, 2009). The occurrence of 'focusing illusions' is often mentioned as an explanation to this dysfunctional side effect. A 'focusing illusion' can be described as individuals' tendency to overrate certain information and underrate other information (Bazerman, 2004). The programmers at AT&T reduced their work to a one-variable equation, which in this case obviously was inappropriate. Nevertheless, under some circumstances a narrow focus makes sense, e.g. when evaluating a field salesman who is selling simple products, such as vacuum cleaners. However, most businesses are far more complicated.

Furthermore, informational asymmetry in the relation between the owner and the manager can induce inefficient managerial behaviour, such as manipulation of information instead of maximization of firm value (see e.g. Grant et.al., 1996). Likierman (2009) argues that gaming of numbers is unpreventable: 'The moment you choose to manage by a metric, you invite managers to manipulate it' (Likierman 2009, p.100).

Incentive compensation based on firm performance is commonly mentioned as the most adequate solution for executives. We are now approaching the centre of this debate: can performance be linked to pay? Johnson & Jensen (1988) argue that there are two fundamental problems with this approach: to determine the appropriate time period, and the occurrence of uncontrollable events. Research has discovered that a variety of short-term pressures can drive managers to what is often referred to as managerial myopia; an asymmetrical focus on short-term investments and gains (Holden & Lundstrum, 2005). Therefore, the prevalent idea nowadays appears to be that long-term measures are preferred in favour of short-term measures (Merchant & van der Stede, 2007). Uncontrollable events refer to circumstances outside the CEOs' limits of control, which affect firm performance (Johnson & Jensen, 1988). In other words: how can we distinguish between fortunate circumstances and good management? Assuming that a CEO is evaluated on Return on Equity (ROE), and that he or she during a worldwide oil shortage crisis makes bad managerial decisions, the ROE might be well above expected, despite poor management. The CEO will then be rewarded, even if it is solely because of uncontrollable events (Johnson & Jensen, 1988).

The most recent debate on incentive compensation has, however, put focus on another issue: risk-taking. It has been recognized that formula bonuses not only reward risky behaviour, but also encourage it (Dillon, 2009). As the credit bubble burst, it became obvious that a high-risk culture existed among the actors within the financial service sector. The relationship between quantitative incentive compensation and excessive risk-taking has previously been examined in a large study by Orphanides (1996). The evidence suggested that incentive compensation has a substantial influence on risky behaviour. Historically, the most widespread structural method to offset these side effects has been to pay a part of the bonus in the form of firm shares. This can be considered as an attempt to shift focus to more long-term decision-making. However, in the cases of Lehman Brothers and Bear Sterns, firms that both applied employee share-ownership, this method proved to be insufficient (Pitman, 2009).

Using Subjective Bonus to Mitigate Dysfunctional Effects

The use of subjectivity as a basis for incentive compensation has, in previous studies, been presented as a method to mitigate the unwanted side-effects from formula bonuses discussed above (Salter, 1973, Bushman et.al.,1996, Gibbs et.al., 2004, Tihar, 2007). For instance, subjectivity can be used to reward managers for efforts not explicitly measured in the formula, and therefore lower the risk of focusing too narrowly on one or a few metrics. Relying more on subjective assessment, where the basis for the evaluation is left somewhat vague, can also prevent manipulation of metrics. Furthermore, subjectivity mitigates the risk of a harmful short-term focus and neutralizes uncontrollable factors (Gibbs et. al., 2004).

However, subjectivity as a basis for evaluation suffers from several clear limitations. The risk of unfair assessments is usually presented as the most significant shortcoming. It is obvious that subjectivity demands trust in the relation between the superior and the subordinate. Otherwise, the outcome could be employee frustration, demoralization and increased employee turnover (Gibbs et. al., 2004). Another shortcoming is that subordinates inappropriately try to influence superiors to gain better evaluations (Milgrom, 1988).

To conclude, despite its limitations, subjectivity as a basis for evaluation complements many of the weaknesses associated with formula bonus, thus allowing the superior to use a more pragmatic and multilateral approach in the assessment (Gibbs et.al., 2004).

Moral Behaviour in a Corporate Environment

The effects of incentive compensation systems on individual behaviour within organizations have, as described above, been in the centre of attention for a long time. However, research on the relationship between incentive compensation and moral awareness is limited.

Morals and ethics can be defined as having the same meaning, as both concepts refer to norms of right, good or acceptable behaviour (Bryant, 2008). Moral behaviour is described as the last step in a multistage process (see e.g. Trevino, 1986; Jones, 1991). The process begins with the identification of a moral issue or moral awareness. Moral awareness is ‘a person’s determination that a situation contains moral content and can legitimately be considered from a moral point of view’ (Reynolds, 2006, p.233).

Research shows that some people consciously act unethically. More interestingly, others do not even recognize the moral aspect of a given situation. By not being aware of the moral dimension, the moral decision-making process is not initiated. Gioia (1992) exemplifies this in the autobiographical story about the Ford Pinto recall; despite an escalating inflow of accident reports, the author did not even reflect over the moral issue in not recalling the defective Ford Pinto cars. This became clear to him a few years later when people had already lost their lives in car accidents due to the faulty construction.

Building on this logic, Reynolds (2006) argues that an improved managerial moral awareness could prevent future ethical catastrophes. In his study, Reynolds relies on traditional ethic theory where people can be classified as either utilitarians or formalists. Utilitarians are ‘ends-focused’, and assess ethical situations in terms of their consequences for other people. For utilitarians, the result is the primary concern. Formalists, on the other hand, are ‘mean-focused’, and assess ethical situations depending on how rules and other formal behavioural norms are followed (Brady & Wheeler, 1996). The well-known philosopher Kant’s thoughts on right-based ethics is often referred to as formalism (Cavanagh et.al., 1981). Kant believed that it is not the outcome achieved by a specific action that gives the action moral; it is the motive behind the action (L'Etang, 1992). Reynolds (2006) found that utilitarians and formalists are different in their capacity to recognize a moral issue. In his study, utilitarians and formalists demonstrated the same moral awareness when they were confronted with a moral issue involving harm. However, when the two groups faced a moral issue involving the violation of a behavioural norm, formalists expressed higher moral

awareness than utilitarians. Reynolds (2006) describes the results: 'It is as if both groups have eyesight, but one group is colour-blind and therefore does not recognize one aspect of vision.' (Reynolds, 2006, p.241)

These findings have interesting implications for corporate governance. Firstly, it explains why some normally reasonable managers can express total indifference to the relevance of a moral issue. Secondly, it suggests that it would be desirable to have more formalists in leading positions (Reynolds, 2006).

Development of Hypotheses

To summarize, it has been proven through extensive research that incentive compensation systems under some circumstances encourage dysfunctional behaviour. Furthermore, an incentive system based on quantitative metrics, and designed to compensate results and performance-oriented behaviour, will reward utilitarians. Considering the results of Reynolds' (2006) study, we find reasons to ask whether utilitarian behaviour is desirable. Does formula bonuses lower moral awareness among professionals, and make them 'blind' to the violation of rules and norms? This reasoning will be tested in the following hypotheses:

Hypothesis 1: Professionals with formula bonus will demonstrate lower moral awareness when confronted with a situation containing the violation of a norm or rule.

Hypothesis 2: Professionals with formula bonus will not demonstrate lower moral awareness when confronted with a situation where harm occurs.

The use of subjectivity as a basis for incentive compensation implies that multiple factors, often non-financial, are taken under consideration when determining a reward. For instance, it is likely that a subordinate will be evaluated on *how* he achieves a specific target, not only that he actually *does* it. Therefore, we find it relevant to test whether subjective bonuses mitigate the hypothesized effects of formula bonuses on moral awareness in the following hypothesis:

Hypothesis 3: Professionals with subjective *and* formula bonus will, in comparison to professionals with only formula bonus, demonstrate higher moral awareness when confronted with a situation containing the violation of a behavioural norm or rule.

3. DATA AND METHOD

Construction of the Questionnaire

In order to collect data to test our hypotheses we used a web-based questionnaire (see Appendix 1). The questionnaire was divided into three sections. The first section contained questions about age, gender, position, years spent in business, company size and industry area.

The second section tested the level of moral awareness. Former studies have established and confirmed that a moral issue is composed of two principal factors, one factor involving harm and another factor involving the violation of a behavioural norm. Furthermore, both theoretical and empirical research support the suggestion that the presence of harm and the violation of a behavioural norm increase moral awareness (Butterfield et.al., 2000; Reynolds, 2006). In a study by Reynolds (2006), moral awareness was tested by manipulating conditions of harm (present and absent) and the violation of a behavioural norm (present and absent) in four short vignettes. Moral awareness was measured by letting the respondents consider the

following claim: 'This situation could be described as a moral issue' (1=*strongly disagree, 7=strongly agree).* We used the same vignettes after translating them into Swedish. In tables 1 and 2 the alumni's answers for the two dependent variables (harm occurs and violation of a behavioural norm or rule) are presented together with the vignette relevant for each variable.

Table 2. Moral awareness among alumni when there is a violation of a behavioural norm or rule

Behaviour		Freq N	Freq %
Strongly disagree	1	13	10,2
	2	9	7,1
	3	6	4,7
	4	8	6,3
	5	13	10,2
	6	14	11,0
Strongly agree	7	64	50,4
	Total	127	100,0

Picture 1. Vignette: Violation of a behavioural norm

Earlier today, a DenComp salesman who works in Iowa called you and told you about an experience that he had last week. One of his customers placed a small order of about $1,500 worth of product from DenComp's corporate headquarters. DenComp immediately shipped the package through a freight company, and it arrived the next day at the freight company's warehouse in Iowa. The salesman went to the warehouse just as it was closing and talked to one of their managers. The manager said that everyone had gone home for the day, but he assured him that the package would be delivered directly to his office the next day. The salesman knew that the customer did not need the materials for at least another 3 days, but he didn't want to wait. He placed a twenty-dollar bill on the counter and asked the warehouse manager one last time if there was anything he could do. The manager found the paperwork, got the product from the back of the warehouse, and brought it out to the salesman.

Table 3. Moral awareness among alumni when harm occurs

Harm		Freq N	Freq %
Strongly disagree	1	8	6,3
	2	19	15,0
	3	4	3,1
	4	22	17,3
	5	18	14,2
	6	18	14,2
Strongly agree	7	38	29,9
	Total	127	100,0

Picture 2. Vignette: Harm occurs

One of DenComp's manufacturing facilities contains five very large and very noisy pressing machines. The facility manager has always followed the state and federal regulations about noise control that apply to those machines, but the noise effects can never be completely eliminated. Doug, a long-time DenComp electrician who regularly works right next to the pressing machines (and always wears the proper equipment), came to your office and told you that his doctor has informed him that he has lost 80% of his hearing in his right ear, probably because of the work he does near the machines.

Finally, the third part of the questionnaire was used to categorize compensation. Gibbs et. al. (2004) categorize the components in the total compensation package as base salary, formula bonuses, subjective bonuses and miscellaneous rewards. Jansen et. al. (2009) use the same operationalization, with only a linguistic difference where subjective bonuses are replaced by discretionary bonuses and miscellaneous rewards are replaced by 'spiffs'. We used Gibbs (2004) construct in order to map the structure of the respondents' compensation package. The respondents answered two questions within each bonus category, first incidence

and then size. Each question had a supplementary exemplifying text to avoid misunderstandings.

Data Collection

We e-mailed the web-based questionnaire to 323 alumni from the School of Business, Economics and Law at the University of Gothenburg. Before the questionnaire was distributed, we sent it to a focus group of employees from various companies, who were asked to comment on the formulation of the questions. 178 of the alumni answered the questionnaire resulting in a response frequency of 55.1 percent, after one reminder. The respondents mean age was 41.84 years (SD = 8.64) and their mean business experience was 16.93 years (SD = 9.58). 46 participants were women, and 132 participants were men. 122 of the respondents were working for large corporations (more than 50 employees or more than 50 MSEK in turnover) and 52 worked for small corporations. 78 of the respondents were top executives, 57 were middle managers and 43 were co-workers. They worked in many different industries including finance, manufacturing, service, government service and municipal service. In an attempt to test the casual direction of the results, an additional survey was conducted, which will be further discussed below. For this reason, 100 currently enrolled students, from the same university as the alumni, were asked to answer the part about moral awareness in the questionnaire (the dropout ratio from both surveys is presented in table 1).

Table 1. Dropout in our two surveys

Category	**Alumni**		**Students**	
	Respondents	*Percent*	*Respondents*	*Percent*
Answered	178	55 %	93	93 %
Complete	127	39 %	93	93 %
Incomplete	51	16 %	0	0 %
Dropouts	145	45 %	7	7 %
Incorrect e-mail address, parental leave, on holiday	29	9 %	0	0 %
Refused	5	2 %	0	0 %
Other dropouts	111	34 %	7	7 %
Total	323	100 %	100	100 %

Calculations and Descriptive Statistics

In order to test the first two hypotheses, we calculated a scale variable of the formula bonus divided by total compensation, which was used as the independent variable:

$$\frac{Formula\ bonus}{Total\ compensation} = Formula\ scale\ variable$$

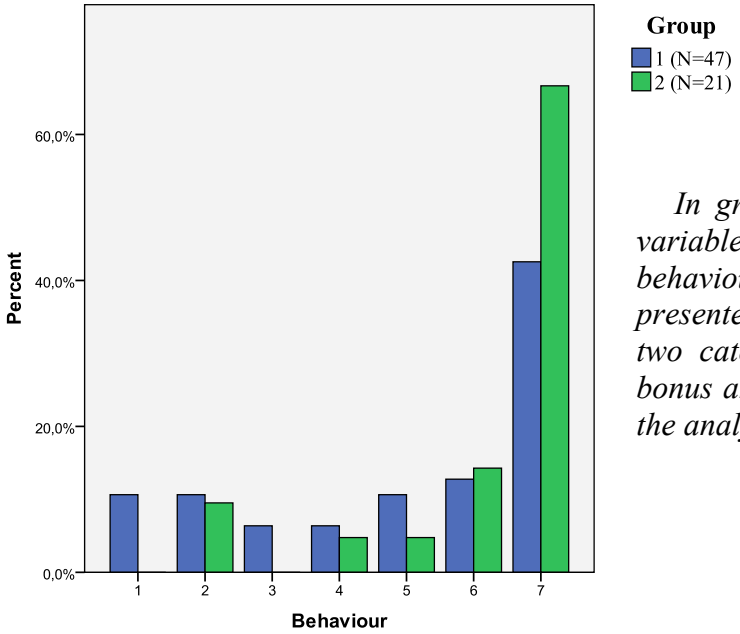
Miscellaneous bonus was excluded from the result for two reasons. Firstly, the definition miscellaneous bonus (in Swedish: 'övrig bonus') was difficult to place within one of the other two categories, hence not applicable to the purpose of this study. Secondly, the number of respondents who had received miscellaneous bonus was limited (11 respondents) and further analysis of this category alone was, therefore, considered superfluous.

To test the third hypothesis we divided the alumni into two groups, which were used as independent variables. The first group consisted of alumni with formula bonus but without subjective bonus and the second group consisted of alumni with both formula and subjective bonus.

Group 1 = Respondents with formula bonus

Group 2 = Respondents with formula bonus and subjective bonus

Graph 1. Group responses for the dependent variable behavior



In graph 1 the original Likert scale variable for the dependent variable behaviour within the two groups is presented. 68 alumni fell within these two categories and 59 alumni had no bonus and were therefore excluded from the analysis.

The Ordinal Regression Model

When the dependent variable is ordinal in nature the ordinal regression method is a suitable statistical tool (McCullagh P. & Nelder J.A, 1989). As mentioned above, a Likert-scale providing ordinal data from 1-7 was used to rate the degree of moral awareness, hence the ordinal regression model was used to analyze the data. For the purpose of this study we used two of the four measures of the questionnaire, concerning moral awareness, as dependent variables: the occurrence of harm and the violation of a behavioural norm. Because there is no obvious classification of moral awareness it was assumed redundant to further categorize the variables and the 7-scale model was used.

The following equation shows the regression model used:

$$\text{link}(\gamma_{ij}) = \theta_j - [\beta_1 x_{i1} + \beta_2 x_{i2} + \ldots + \beta_p x_{iJ}]$$

where

link (.) is the link function
γ_{ij} is the cumulative probability of the j^{th} category for the i^{th} case
θ_j is the intercept for the j^{th} category
p is the number of regression coefficients
$x_{i1} \ldots x_{ip}$ are the values of the predictors for the i^{th} case
$\beta_1 \ldots \beta_p$ are regression coefficients

The model predicts a function of the actual cumulative probabilities. This function link (.) is called the link function (McCullagh P. & Nelder J.A, 1989). There are five available link functions in SPSS (Table 4. in Appendix 2). To test which one of these link functions that would be suitable in our study we analyzed three of the link functions that could be applicable to our received data: Logit, Complementary log-log and Cauchit. Because the significance level for the chi-square statistic was less than 0.05 for the logit function and higher than 0.05 for the other two functions the logit function was chosen in our model.

Methodological Issues

This study suffers from some methodological limitations, which will be discussed below. Firstly, the purpose of explorative studies is to provide greater understanding and insight of an issue. The results in explorative studies can normally not be generalizable (Malhotra, 2004). This is true also in this study, as the samples are not randomly selected.

Secondly, if result-oriented people choose employers who offer a high proportion of variable pay, there could be a problem of reverse causality. The reverse causality may bias the study showing a negative relationship between moral awareness and a high proportion of formula bonus, which should be explained by people's mindset and not their compensation. To mitigate this problem we compared alumni with students to examine if moral awareness among students was higher. If alumni had the same mindset as the students of today when they were students, it would support our assumption that business experience lowers moral awareness. Hence supporting the causal relationship between moral awareness and compensation. This technique is simple, but in the absence of more sophisticated methods, e.g. to follow a group of respondents over the years and map their moral development, it gives at least an indication of the casual relationship.

Thirdly, vignettes have been criticised for being a simplistic and artificial method (Weber, 1992), and is, therefore, a threat towards the study's validity. However, the vignettes have been carefully tested and used in Reynolds' (2006) study, and also tested on a Swedish reference group. Furthermore, current practise within the field of ethics allow vignettes as an acceptable research method (Schonberg & Ravdal, 2000).

Fourthly, respondents' over- and understating their income makes questions regarding salary a sensible part of a survey.[4] To attain a higher reliability, it would have been preferable to collect this data through income statistics (Djurfeldt et.al., 2003). It is, though, difficult to gain full insight in the composition of a person' salary through such tools and we have therefore relied on previous constructs in the design of our questionnaire.

Finally, simplicity is widely recognized as an important guideline to improve both reliability and validity (Djurfeldt et.al., 2003). We received a few comments from respondents who experienced the survey as being complicated, uncomfortable and time-consuming. The level of complexity and time-requirements of the survey could therefore hamper the study's reliability and validity. Nevertheless, the nature of this topic makes it necessary to ask sensible and multi-faceted questions.

4. RESULTS

The result is divided into three parts. In the first part we test hypotheses 1 and 2. In the second part hypothesis 3 is tested and part three shows the result from a comparison between alumni and students.

The Effect of Formula Bonus on Moral Awareness

Firstly, the ordinal regression model presented in the method was used to test hypotheses 1 and 2. The result is presented in table 5. The *p*-value for the coefficient when there is a violation of a behavioural norm is 0.799. Therefore, we cannot reject the null hypothesis that no relationship exists between formula bonus and moral awareness when there is a violation of a behavioural norm or rule. Our first hypothesis, that formula bonus would lower moral awareness when there is a violation of a behavioural norm or rule, must therefore be rejected.

[4] www.socialresearchmethods.net

The *p*-value for the coefficient when harm occurs is 0.831. This means that the null hypothesis, that no relationship exists between formula bonus and moral awareness when harm occurs, cannot be rejected. This finding is in line with our second hypothesis that moral awareness would not be affected when harm is present and our second hypothesis is thereby confirmed.

Since we could not reject the null hypothesis, for neither harm nor behaviour, there is no reason to interpret the coefficients.

Table 5. Formula bonus/total compensation

Independent variable	*β*	*SE*	*p*	*exp(β)*
1. Formula bonus → moral awareness (harm occurs)	0.256	1.197	0.831	1.292
2. Formula bonus → moral awareness (violation of a behavioural norm or rule)	0.323	1.272	0.799	1.381

The effects on moral awareness when subjectivity is introduced

We then tested the third hypothesis that moral awareness would be lower among alumni with formula bonus but without subjective bonus (group 1), than alumni with both formula and subjective bonus (group 2) when there is a violation of a behavioural norm or rule. The result is presented in table 6 (the values for the dependent variable harm is published in table 6, however these values will not be discussed further as they are of minor interest in this study). The *p*-value for the coefficient (*β)* is 0.044. Therefore, the null hypothesis, that no relationship exists between formula bonus and the dependent variable behaviour, can be rejected at a significance level of 5 percent ($\alpha = 0.05$). The coefficient for group 1 in comparison to group 2 is -1.072. The negative sign on the coefficient show that group 1 considered the violation of a behavioural norm less of a moral problem than group 2. The result supports our third hypothesis, indicating that moral awareness is lower among alumni with only formula bonus. Further in depth analysis of the result was performed. This analysis investigated other factors, from our sample, that could affect moral awareness (presented in appendix 3). The factors chosen were age, gender and position.[5] None of the investigated factors showed a significant coefficient, hence not adding to the model's explanatory power.

Table 6. Comparing professionals with and without subjective bonus as part of total bonus

Independent variable	*β*	*SE*	*p*	*exp(β)*
1. Formula bonus → moral awareness (harm occurs)	0.163	0.464	0.725	1.177
2. Formula bonus → moral awareness (violation of a behavioural norm or rule)	-1.072	0.531	0.044	0.342

Note i. *In the model group 1 is compared to group 2 and the coefficient show the relation between group 1 and group 2. A greater coefficient indicates a greater probability of being in one of the 'higher' cumulative outcome categories. The sign of a coefficient for a factor level is dependent upon that factor level's effect relative to the reference category group 2.*

In addition a model fitting chi-square tests was performed to estimate if the model statistically significantly improve the baseline intercept-only model. This means that the model would give a better prediction than simple guessing, based on the marginal

[5] Company size and work experience were considered redundant. In addition, the sample was too small to analyze industry area.

probabilities for the outcome categories (McCullagh and Nelder, 1989). The *p*-value for the chi-square test was 0.035; hence the model gives a good prediction at a significance level of 5 percent ($\alpha = 0.05$).

The ordinal scale express the relationship between the two groups, and the results are therefore interesting even though our first hypothesis was rejected. Thus, regardless of the absolute level of moral awareness, the results implies that group 1, in comparison to group 2, demonstrates lower moral awareness when a rule is breached.

Comparing Alumni and Students

Finally, we used the ordinal regression model in order to test whether there was a difference between alumni' and students' moral awareness considering the two dependent variables (harm occurs and violation of a behavioural norm or rule). The result is presented in table 7. The *p*-value for the coefficient when there is a violation of a behavioural norm or rule is less than 0.01 and the null hypothesis, that no relationship exists between alumni and students, is rejected. The coefficient for alumni in comparison to students is 1.284. The regression coefficient is positive, indicating that alumni will show a higher moral awareness when there is a violation of a behavioural norm or rule. Opposed to our assumption this means that the students in our sample rate the violation of a behavioural norm as less of a moral problem/dilemma than the alumni does. The *p*-value for the coefficient when harm occurs shows no significant difference between the two categories.

Table 7. Comparison between alumni and students

Independent variable	*β*	*SE*	*p*	*exp(β)*
1. Business experience → moral awareness (harm occurs)	-0.095	0.241	0.694	0.909
2. Business experience → moral awareness (violation of a behavioural norm or rule)	1.284	0.255	> 0.01	3.611

Note ii. *In the model alumni is compared to students and the coefficient shows the relation between alumni and students. A greater coefficient indicates a greater probability of being in one of the "higher" cumulative outcome categories. The sign of a coefficient for a factor level is dependent upon that factor level's effect relative to the reference category (students).*

A model fitting chi-square test was performed for the dependent variable behaviour, which gave a *p*-value of less than 1 percent. This means that the model gives a good prediction at a significance level of 1 percent ($\alpha = 0.01$).

All results will be discussed further in the next section.

5. DISCUSSION

The purpose of this explorative paper was to empirically test if formula bonus lower moral awareness and whether subjectivity as a basis for evaluation mitigates these predicted negative side-effects.

In the previous section, it was evident that we did not find support for our first hypothesis; that professionals with formula bonuses would demonstrate lower moral awareness when confronted with the violation of a norm or rule. We found support for our second hypothesis, that professionals with quantitative incentive compensation would not demonstrate lower moral awareness when confronted with a situation containing harm. This finding is though of little relevance in this paper since we had to reject our first hypothesis.

How can these results be explained? Firstly, it is important to examine the impact of cultural differences between USA and Sweden, since our predictions heavily rely on research from USA (including Reynolds' study from 2006). One cultural explanation can possibly be found in our choice of vignette describing the violation of a behavioural norm. The vignette illustrates how a bribe is paid in order to achieve a result. Sweden was in 2008 ranked as the least corrupt country in the world.[6] The choice of vignette is therefore a weakness in our study, because it is likely that even an innocent bribe meets disproportionately high emotional resistance among most Swedes.

Hofstede's conception of culture serves as a good foundation to continue this analysis. According to his framework, values are the core of every culture, being 'a broad tendency to prefer certain states of affairs over others' (Harrison & McKinnon, 2007, p.94). *Masculinity* is the dimension in Hofstede's framework where USA and Sweden differ the most. Sweden has an extremely low score (5) and USA places among the higher ranked countries (62). This dimension, masculinity versus femininity, refers to the extent of stereotypical family roles of gender in a society. Values such as assertiveness and competitiveness are considered important in high masculine societies, as well as achievement and success, including material success. Thus, the effect of quantitative incentive compensation is powerful in masculine societies. In feminine societies, such a restricted focus 'is likely to be less accepted or even counterproductive' (van der Stede, 2003, p.267). Feminine societies value a non-material quality of life and modesty in achievement (Harrison & McKinnon, 2007). Even if the respondents in our study are rewarded for result-oriented behaviour, distinct feminine values in Sweden may alleviate their perceived pressure. Thereby, one interpretation is that Swedish cultural values act as a counterweight towards the hypothesized lowering effect of formula-based bonuses on moral awareness.

Our third hypothesis, that professionals with both subjective *and* formula bonuses demonstrate higher moral awareness than professionals with only formula bonuses, was confirmed and significant. Previous research has confirmed the mitigating effect of subjectivity on a number of well-known drawbacks stemming from formula bonuses (Gibbs et.al., 2004, Tahir, 2007). However, the finding that subjectivity as a complementary basis for evaluation seems to increase moral awareness is interesting. It suggests that it would be desirable, for an additional reason, to balance pure result-oriented measures with subjectivity. Intuitively, the reasoning is appealing; the distinguished advantages of quantitative incentives can indeed be used in order to shape utilitarians, but formalistic principles must be protected from being overrun. This is done by letting a brother's keeper, in the form of a superior, evaluating the way to achievement. However, this finding is indicative and further research must be done to verify the results.

The relationship between students and alumni was contradictive to our prediction that alumni would express lower moral awareness than students when confronted with the violation of a behavioural norm. This finding is of little methodological relevance, since there was no support for our first hypothesis, and the major purpose originally was to mitigate the reverse causality in these hypotheses. However, the contradictive effect is remarkably strong. Even though it is outside the scope of this paper, further research on this relationship could be of great importance in order to understand e.g. the values and ideals of the next business generation. If future leaders express a tendency to ignore rules and norms to a greater extent than their predecessors, it has essential implications for the shaping of tomorrow's corporate governance. These results may have many possible explanations. One interpretation could be that business schools create an atmosphere where 'the real business world' is full of hard, unscrupulous minds where only result counts. This image may be enforced by the fact that a

[6] Transparency International, Corruption Perceptions Index 2008. Sweden is ranked as number 1 and the USA is ranked as number 18.

large share of the literature in Swedish business schools consists of traditional American management literature. These books are, obviously, built on American practise and values, where e.g. result orientation, tight employee control and formal structures are prominent ingredients. In this scenario, the students leave the classroom with a somehow lopsided idea of how business life actually works in Sweden. Once they are established in the working life, a normalization process towards a 'softer', and more rule-oriented attitude could be initiated. Another explaining factor may be the general trend towards a more globalized world, where influences, both good and bad, spreads between cultures. National identities, which comprise factors such as values and ideals, are not static (Kennedy & Danks, 2001). Sweden is a small country and thereby greatly affected by globalization. The students at Swedish business schools today have generally more experience from other cultures, through exchange programs, extensive travelling, media etc., than their predecessors had. Our finding may be an early signal of that Sweden, to a greater extent, will encounter similar moral-based problems as USA has done during the last decades. In all cases, business schools in Sweden have reason to investigate the sources to this 'moral gap' between their students and the business world they are preparing them for.

Finally, it is intriguing to reflect on the advantages of using an explorative approach, which allow the researcher to alter course during the study's progress. This approach resulted in our finding that a 'moral gap' seems to exist between students and working people. If confirmed through further research, the finding has potential to lay the foundation for future research in many different areas. Bear in mind that the initial reason for us to collect data from students was an attempt to avoid reverse causality that later turned out to provide these interesting results.

6. CONCLUSION AND LIMITATIONS

The aim of this paper was to examine the effect of incentive compensation systems on moral awareness. Our interdisciplinary study contributes specifically to the research on how moral awareness is affected by the different parts in the compensation package. More generally, it contributes to the literature on how reward schemes affect behaviour. We have not found evidence to support that formula bonuses lower moral awareness. Numerous explanations could be used to interpret this result. However, we believe that a major explaining factor lays in the cultural differences between USA and Sweden.

Further on, our findings indicate that subjectivity as a basis for assessments increases moral awareness. Previous research has already established the role of subjectivity as complementing quantitative incentive compensation systems (Salter, 1973; Bushman et.al., 1996; Gibbs et.al., 2003; Tahir, 2007). Our findings further induce this statement.

Because of our short time frame (10 weeks), we were forced to make decisions that are limiting for the study. This limitation has been particularly apparent in the design of the questionnaire. Firstly, we found no reason to replicate the analysis of the casual relationship between presence of harm/violation of a behavioural norm and moral awareness. Therefore, the 'Dummy'-variable was excluded from our results. Secondly, the variable 'Harm/Behaviour' was not necessary for the purpose of this study and this variable was also excluded from our results. Obviously, it would have been preferred to further investigate moral awareness when there is a violation of a behavioural norm by asking respondents to answer additional questions regarding this variable instead of the two excluded variables. Finally, a more generous time frame would have allowed us to conduct further in-depth analysis of the questions in the first section of the questionnaire, regarding e.g. gender and industry characteristics.

This paper is explorative, and we see many possibilities to conduct further research within this area. Considering our initial thoughts regarding the origin of the financial crisis, we recommend that future research investigates the same relationships, but in USA. It would be interesting to compare our results with results from USA, as we still believe that moral awareness is an important factor to take into consideration while new regulations and behavioural standards are developed. Furthermore, our finding that subjectivity as a basis for evaluation seems to complement quantitative incentive systems on yet another dimension needs to be replicated in order to confirm its relevance.

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APPENDIX 1. Questionnaire *(Translated from Swedish)*

Masters Thesis in Management Accounting

Dear Sir/Madam
We are active at the Department of Business Administration at Gothenburg School of Business, Economics and Law. This study is part of the information gathering for our master thesis in Management Accounting. The purpose of the study is to test the link between reward systems and moral awareness.

The study is partly dealing with sensitive issues such as wages, and all answers are, of course, completely anonymous. There is absolutely no possibility to deduce the answers to individual respondents. We are grateful that you will take your time to answer the questions below.

Best Regards,
/Viktor Lundberg & Christofer Montell

Part 1. General Questions
Answer the following questions by ticking the option that best applies to you.

Age:

Sex:
Male
Female

Position:
Top Management (e.g. CEO, CFO, COO etc.)
Middle Management (e.g. Department manager, Key Account Manager etc.)
Co-worker (e.g. Controller, accounting clerk etc.)

How many years have you been working?

What size is the company you work for?
Large company (50 employees or more, or more than 50 million in annual sales)
Small businesses (fewer than 50 employees and less than 50 million in annual sales)

Which branch/sector are you working?
Banking and Finance
Industry
Retail or service
Public Service Administration
Municipal Administration
Other

Part 2. Moral Assumptions

Please read the following brief descriptions of the fictional company DenComp.

Describe to what extent you believe that these situations can be described as a moral dilemma/problem by specifying a number from 1-7 (1 = disagree, 7 = agree completely).

Situation 1

One of DenComp's manufacturing facilities contains five very large and very noisy pressing machines. The facility manager has always followed the state and federal regulations about noise control that apply to those machines, but the noise effects can never be completely eliminated. Doug, a long-time DenComp electrician who regularly works right next to the pressing machines (and always wears the proper equipment), came to your office and told you that his doctor has informed him that he has lost 80% of his hearing in his right ear, probably because of the work he does near the machines.

Situation 2

Last Monday, you were sitting at your desk examining a request that a customer had just faxed to you. The customer was proposing a project that would make a tremendous amount of money for your company but had an extremely demanding time schedule. Just as you were about to call the customer and accept the project, one of your employees, Phil, knocked on the door. He entered your office, politely placed a letter of resignation on your desk, and told you that he was sorry, but in two weeks, he would be moving to another state to be closer to his ailing parents. After he left, you thought about the proposed project and determined that even though Phil would be gone, you could still meet all of the customer's deadlines. You called the customer and accepted the project.

Situation 3

Earlier today, a DenComp salesman who works in Iowa called you and told you about an experience that he had last week. One of his customers, a manager in your area, Terry, drives a company car. Company policy states that corporate cars are to be inspected every 3,000 miles without exception. Terry last had her car inspected about 5,000 miles ago - she says that she "just doesn't want to be bothered that often." Today, Pat, a co-worker of Terry's, asked Terry for the keys to the car so she could deliver some artwork to a few customers. While driving on the highway, the car's breaks malfunctioned. The car spun out of control and came to a rest in a ditch on the side of the road. Pat's forehead struck the steering wheel, and she had to go to the hospital to get 18 stitches.

Situation 4

Earlier today, a DenComp salesman who works in Iowa called you and told you about an experience that he had last week. One of his customers placed a small order of about $1,500 worth of product from DenComp's corporate headquarters. DenComp immediately shipped the package through a freight company, and it arrived the next day at the freight company's warehouse in Iowa. The salesman went to the warehouse just as it was closing and talked to one of their managers. The manager said that everyone had gone home for the day, but he assured him that the package would be delivered directly to his office the next day. The salesman knew that the customer did not need the materials for at least another 3 days, but he didn't want to wait. He placed a twenty-dollar bill on the counter and asked the warehouse manager one last time if there was anything he could do. The manager found the paperwork, got the product from the back of the warehouse, and brought it out to the salesman.

Part 3. Salary and Compensation

The section below contains questions about the size and composition of your compensation. The total compensation/salary is divided into 4 different parts. These are:

1. Fixed salary
2. Variable bonus linked to e.g. profit (so-called formula-based bonus)
3. Subjective bonuses based on your boss' evaluation of you
4. Miscellaneous bonus (e.g. holiday travel, movie tickets, etc.)

1 How big was your base salary last year (relating to the fixed compensation that normally increases each year)?

2a Did you have the opportunity to obtain some form of variable bonus based on quantitative performance measures (such as sales, profits, etc.) during the last year?
Example: Maria, who works at a company, received 10% of the department's profit growth in bonuses last year. The profit increase was 400 000 SEK. Maria, therefore, received 40 000 SEK in variable bonus last year. Maria's answer: Yes
Yes
No

2b If you answered yes to the previous question, how big was your variable bonus last year? If you answered No, skip to question 3a.
Ex. Maria received 10% of the department's profit growth in bonuses last year. The profit increase was 400 000 SEK. Maria, therefore, received 40 000 SEK in variable bonus last year. Maria's answer: 40 000

3a Did you have the opportunity to obtain some form of so-called subjective bonus last year (based on the evaluator's subjective appreciation of your performance)?
Ex. Maria's boss has the right to give her a bonus of up to 15% of the annual salary of 300 000, based on how the manager thinks that Maria developed. Last year, Maria received 10% of the annual salary of 300 000 SEK in bonuses. Maria's answer: Yes
Yes
No

3b If you answered yes to the previous question, how much did you receive in subjective bonus last year? If you answered No, skip directly to question 4.
Ex. Maria's boss has the right to give her a bonus of up to 15% of the annual salary of 300 000 based on how the manager thinks that Maria developed. Last year, Maria received 10% of the annual salary of 300 000 SEK in bonuses. Maria's answer: 30 000

4a Did you have the opportunity to obtain some form of additional bonus last year (e.g. a direct bonus based on a certain number of sales)?
Ex. Maria received a trip to Barcelona (worth 10 000 SEK) for having sold 30 cars in one month. Maria's answer: Yes
Yes
No

4b If you answered yes to the previous question, how big was your miscellaneous bonus did you received last year? If you answered No, you have completed the questionnaire. *Ex. Mary was a trip to Barcelona (worth 10 000 SEK) for having sold 30 cars in one month. Maria's answer: 10 000*

APPENDIX 2. Link Functions

Table 5. Link Functions

Function	Form	Typical application
Logit	log(x / (1−x))	Evenly distributed categories
Complementary log-log	log(−log(1−x))	Higher categories more probable
Negative log-log	−log(−log(x))	Lower categories more probable
Probit	F−1(x)	Latent variable is normally distributed
Cauchit (inverse Cauchy)	tan(π(x−0.5))	Latent variable has many extreme values

Retrieved from the help function in SPSS 17.

APPENDIX 3. Analysis of other factors affecting moral awareness

Parameter Estimates

							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	[Behav = 1]	-6.150	1.604	14.708	1	.000	-9.293	-3.007
	[Behav = 2]	-5.086	1.545	10.836	1	.001	-8.114	-2.058
	[Behav = 3]	-4.784	1.531	9.761	1	.002	-7.785	-1.783
	[Behav = 4]	-4.441	1.516	8.581	1	.003	-7.412	-1.470
	[Behav = 5]	-3.986	1.497	7.092	1	.008	-6.919	-1.052
	[Behav = 6]	-3.328	1.472	5.113	1	.024	-6.213	-.443
Location	Age	-.041	.031	1.811	1	.178	-.102	.019
	[quant11=1.00]	-1.033	.564	3.347	1	.067	-2.139	.074
	[quant11=2.00]	0[a]	.	.	0	.	.	.
	[Gender=1]	-.346	.612	.319	1	.572	-1.545	.853
	[Gender=2]	0[a]	.	.	0	.	.	.
	[Position=1]	-1.114	.913	1.490	1	.222	-2.903	.675
	[Position=2]	.003	.927	.000	1	.998	-1.814	1.819
	[Position=3]	0[a]	.	.	0	.	.	.

Link function: Logit.

a. This parameter is set to zero because it is redundant.