Journal of Business Ethics (2006) 69:11–25
DOI 10.1007/s10551-006-9064-y

Accountants' Value Preferences and Moral Reasoning

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ABSTRACT. This paper examines relationships between accountants' personal values and their moral reasoning. In particular, we hypothesize that there is an inverse relationship between accountants' ''Conformity'' values and principled moral reasoning. This investigation is important because the literature suggests that conformity with rule-based standards may be one reason for professional accountants' relatively lower scores on measures of moral reasoning (Abdolmohammadi et al. *J Bus Ethics* 16 (1997) 1717). We administered the Rokeach Values Survey (RVS) (Rokeach: 1973, *The Nature of Human Values* (The Free Press, New York)) and the Defining Issues Test (DIT) (Rest: 1979, *Development in Judgment Moral Issues* (University of Minnesota Press, Minneapolis, MN)) to164 graduating accounting students enrolled in capstone courses at two universities in the Northeastern United States. As potential entrants into the accounting profession, these subjects bring their values and moral reasoning to bear on attitudes and behaviors in the workplace. We find a highly significant inverse relationship between ''Conformity'' values and principled moral reasoning (i.e., those who prefer Conformity values have lower levels of moral reasoning). However, we also find that accounting students as a group do not prefer Conformity values above other values such as Self-actualization and Idealism, and we find positive relationships between Self-actualization and Idealism values and moral reasoning. Implications for values and ethics research are discussed.

KEY WORDS: Rokeach Values Survey, moral reasoning, DIT

Introduction

The purpose of this paper is to investigate the relationship between accountants' personal value preferences and their level of principled moral reasoning. Previous studies of personal values and moral reasoning have shown statistically significant, but moderate, relationships between personal values and behavior (Ravlin and Meglino, 1987) and between moral reasoning and behavior (Thoma, 1994), but the relationship between personal values and moral reasoning has seldom been investigated. As Weber (1993: 455) suggests, research on the relationship between personal values and behavior misses the intermediate step of moral reasoning, and research on the relationship between moral reasoning and behavior misses the antecedent influence of personal values.

Our investigation is particularly important for several reasons. The first is that accountants are expected to have strong personal values and high levels of moral reasoning in order to withstand client pressures and deliver independent professional judgments. Public demand for strong personal values and high moral reasoning has been particularly high

An earlier version of this paper was presented at a workshop at Bentley College and we have greatly benefited from participants comments, especially those of Jean Bedard, Marty Howe, James Hunton, Mark Nixon, and Jay Thibodeau.

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in recent years due to both business (e.g., Enron, WorldCom, Tyco) and accounting scandals (e.g., Arthur Andersen's collapse, KPMG's involvement with fraudulent tax shelters). Another reason for conducting this study is the persistent concern about ethical conduct in the accounting profession. Douglas et al. (2001) indicate that this concern has existed since the American Association of Public Accountants (the predecessor of the American Institute of Certified Public Accountants, or AICPA) first adopted ethics rules in 1905, and that accountants' ethical beliefs and moral reasoning have been scrutinized ever since. In particular, Douglas et al. refer to the Treadway Commission (1987) comment that "personal values and codes of conduct can serve as important deterrents to unethical acts." Therefore, we would like to know more about how personal values influence or interact with accountants' moral reasoning.

Finally, by investigating the relationship between personal values and moral reasoning, we hope to provide an explanation for the relatively lower scores of accountants on measures of moral reasoning as previously reported in the literature (see Ponemon and Gabhardt, 1993, for a review). Ponemon (1993) and Abdolmohammadi et al. (2003) provide evidence that a selection–socialization process exists in public accounting in which auditors tend to select and retain colleagues who have similar levels of moral reasoning. This selection–socialization process may contribute to the problem of low ethical reasoning scores in accounting (Abdolmohammadi et al., 1997). The value preferences of some accountants for "Conformity" type values seems to be negatively correlated with principled moral reasoning. While not all accountants display a preference for Conformity values, we find that those accounts who do prefer Conformity values appear to have lower levels of principled moral reasoning.

The remainder of this paper is organized as follows. The next section presents a review of the prior literature and formulates certain hypotheses and research questions. The section after that describes the methods employed in testing the hypotheses. The results are then presented, followed by limitations, suggestions for future research, and concluding remarks.

Literature Review and Hypothesis

Research on Personal Values

In an influential book, Rokeach (1973) argued that personal values occupy a central position in an individual's cognitive makeup and that values influence attitudes and behaviors. He defined a personal value as "an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence" (Rokeach, 1973: 5). Rokeach (1973) argued that values could be distinguished from other constructs like attitudes, because values are enduring beliefs that transcend specific situations. Furthermore, since values occupy a central position in an individual's cognitive makeup, they may influence attitudes and behaviors (Rokeach, 1973). Empirical evidence summarized in Ravlin and Meglino (1987) supports a significant, albeit moderate relationship between personal values and behavior like managerial decisions.

Rokeach believed that the values a person holds are relatively few in number and that most individuals hold the same values, but with differing degrees of emphasis. This is the underlying premise behind the Rokeach Values Survey (RVS). The RVS consists of two lists of 18 Terminal and 18 Instrumental values (see Table I). Terminal values are defined as beliefs about desirable end-states of existence, while Instrumental values are beliefs about desirable modes of conduct (Rokeach, 1973). Rokeach (1973) provided two sub-classifications for Terminal and Instrumental values, dividing Terminal values into "Personal Values" (e.g., A Comfortable Life) and "Social Values" (e.g., Equality). The basis of this classification was whether the value is self-centered or society-centered (Rokeach, 1973: 8). Similarly, Rokeach (1973) divided Instrumental values into "Competence Values" (e.g., Ambitious) and "Moral Values" (e.g., Honest). While the focus of "Moral Values" is interpersonal, the violation of which would bring feelings of guilt, the focus of "Competence Values" is intrapersonal, the violation of which would bring feelings of shame or inadequacy (Rokeach, 1973: 8). Rokeach (1973)

TABLE I

Factor structure of terminal and instrumental values

No		Weber (1990) four-factor classification[a]	Crosby et al.'s (1990) seven-factor classification[b]
Terminal values[a]			
1.	A comfortable life	Personal	Hedonism
2.	A sense of accomplishment	Personal	Self-actualization
3.	A world at peace	Social	Security
4.	A world of beauty	Social	Idealism
5.	An exciting life	Personal	Hedonism
6.	Equality	Social	Idealism
7.	Family security	Personal	Security
8.	Freedom	Personal	Idealism
9.	Happiness	Personal	Hedonism
10.	Inner harmony	Personal	Self-actualization
11.	Mature love	Personal	Self-actualization
12.	National security	Social	Security
13.	Pleasure	Personal	Hedonism
14.	Salvation	Personal	Self-actualization
15.	Self-respect	Personal	Self-actualization
16.	Social recognition	Personal	Hedonism
17.	True friendship	Personal	Self-actualization
18.	Wisdom	Personal	Self-actualization
Instrumental values[a]			
1.	Ambitious	Competence	Self-direction
2.	Broadminded	Competence	Self-direction
3.	Capable	Competence	Self-direction
4.	Cheerful	Moral	Conformity
5.	Clean	Moral	Conformity
6.	Courageous	Moral	Self-direction
7.	Forgiving	Moral	Virtuous
8.	Helpful	Moral	Virtuous
9.	Honest	Moral	Virtuous
10.	Imaginative	Moral	Self-direction
11.	Independent	Competence	Self-direction
12.	Intellectual	Competence	Self-direction
13.	Logical	Competence	Self-direction
14.	Loving	Competence	Virtuous
15.	Obedient	Moral	Conformity
16.	Polite	Moral	Conformity
17.	Responsible	Competence	Conformity
18.	Self-controlled	Neither	Self-direction

[a]Adopted from Rokeach (1973), Weber (1990), and Wright et al. (1997).
[b]Adopted from Crosby et al. (1990) and Shafer et al. (2001).

did not provide empirical evidence for his classification scheme, but subsequent studies have provided empirical support for his four-factor classifications. For example, using factor analysis, Weber (1990) provided empirical support for Rokeach's scheme, although he could not classify

Self-Controlled into any factor.[1] Weber's classification is provided in Table I.

One classification scheme of particular interest to us is that of Crosby et al. (1990) who classified Instrumental values into the three factors of Conformity, Virtuous, and Self-direction. Crosby et al. also classified Terminal values into Idealism, Security, Self-actualization, and Hedonism. Using confirmatory factor analysis, Shafer et al. (2001) found support for Crosby et al.'s (1990) classification. This classification is also presented in Table I. As reported below we used confirmatory factor analysis to investigate the loading of these seven factors, as well as Weber's (1990) four factors, in several structural equation models. Our interest in this classification scheme relates to its ability to identify ''Conformity,'' ''Self-actualization,'' and ''Idealism,'' which are of particular interest in investigating the relationship between accountants' personal values and their levels of moral reasoning.

In a typical administration of the RVS, subjects are asked to separately rank order a list of Terminal and Instrumental values using a sorting technique or assigning numbers to the values using a Likert scale. Differences in preference rankings between groups of subjects are then assessed. As explained in the ''Research method'' section below, we use a method of forced ranking to reduce the tendency toward the mean bias that is a limitation of the Likert scale. By administering the RVS at the beginning (pre) and end (post) of the course, we test the reliability of the RVS over a period of time.

Since its introduction in 1973, RVS has been subjected to extensive research. This research indicates that personal values influence attitudes towards matters like civil rights, international affairs and religion, and certain behaviors, like extent of church attendance, political activism, classroom cheating, and choice of academic major (Mayton et al., 1994). Differences in value preferences have also been observed between cultures (Hofstede and Bond, 1984). In addition, previous research has addressed the relationship between value preferences and managerial decision making (England, 1967; Hunt and Vitell, 1986; Learned et al., 1959). The general conclusion is that there is a statistically significant, albeit moderate relationship between value preferences and actual behavior (Ravlin and Meglino, 1987). What these previous studies have found is that persons who express a preference for Personal Values (Self-actualization) or Competence Values (Self-direction) have a greater tendency towards unethical business behavior, while persons who express a preference for Social Values (Idealism) are more politically liberal in orientation (Weber, 1993; Brief et al., 1996).

There have been only a few studies that have investigated personal values in accounting (c.f., Baker, 1976; Douglas and Schwartz, 1999; Giacomino and Akers, 1998; Shafer et al., 2001; Wilson et al., 1998). For example, Baker (1976) administered the RVS to a sample of 543 undergraduate students at a large urban university, focusing on differences in value preferences between students who expressed an interest in pursuing accounting as a major field of study and those who did not. He found that accounting majors assigned the highest preference rankings to values such as ''A Comfortable Life,'' ''Family Security,'' ''Ambitious,'' and ''Responsible''. However, accounting students in general did not differ on most values from other university students. Interestingly, Shafer et al. (2001) found that practicing auditors also preferred values such as ''Family Security'' and ''Responsible.''

Other studies in accounting have focused on the effects of personal values on judgment or behavior. For example, Brief et al. (1996) investigated the relationship between the RVS and fraudulent financial reporting. These authors initially found a positive but low correlation between the propensity to engage in fraudulent financial reporting and preference rankings on the values ''A Comfortable Life'' and ''Pleasure,'' as well as a low negative correlation with ''Self-Respect.'' In an attempt to clarify these results, the authors conducted a follow-up experiment in which they were not able to confirm the correlation between the RVS value preferences and fraudulent financial reporting. Similarly, in a study of accounting students' familiarity with the AICPA's Code of Professional Conduct (i.e., ethical orientation), McCarthy (1997) found no significant relationship between ethical orientation and RVS.

Wright et al. (1997) investigated the relationships between RVS values and moral intensity.[2] The authors followed Jones' (1991) argument that when the

moral intensity of an issue is greater, the more likely the ethical component of the issue will be recognized, leading subjects to use an ethical framework in making decisions about the issue (see also Douglas et al., 2001). Wright et al. (1997) administered the RVS and a survey called the Perceptions of Ethical Severity Survey (PEES) to a sample of 98 senior undergraduate accounting students. The dependent variable was the average score on the PEES, which served as a measure of moral intensity. The independent variables were defined as the sum of the value preference rankings on the RVS across the four-factor classifications in Table I: Personal Values; Social Values; Moral Values; and Competence Values. The authors found a negative correlation between Personal values and moral intensity, and positive correlations between Social and Moral values and moral intensity. No relationship was found between Competence values and moral intensity. Contrary to Jones' argument, the authors found that value preferences were related to moral intensity only when the level of moral intensity was low.

In a more recent study, Shafer et al. (2001) investigated the relationship between RVS values and auditors' ethical decision making. They administered the RVS to a sample of 323 practicing auditors who were members of the AICPA. They used an audit case involving a client's pressure to issue an unqualified opinion on a set of financial statements despite concern about the adequacy of the allowance for doubtful accounts. Moral intensity was manipulated through a change in income (an 8% change equaled low intensity, while a 40% change indicated high intensity). The authors also used an instrument to assess the behavioral intentions of the subjects. Using confirmatory factor analysis, the authors where able to replicate Crosby et al.'s (1990) seven-factor classification of Terminal and Instrumental values on the RVS (see Table I). However, while they found significant inverse relationships between moral intensity and behavioral intention, they found no significant relationship between any of the seven RVS factors and moral intensity.

In summary, the values literature in accounting has established a reasonably clear picture of the value preferences of accounting students and practitioners. However, while studies in other fields have found significant, albeit moderate relationships between value preferences and behavior, accounting studies have reported mixed results. The question remains, why is this the case?. As summarized below we believe that a plausible explanation may involve accountants' ''Conformity'' values, which may limit their ability to reason beyond compliance with rule-based accounting standards.

Moral reasoning

Moral reasoning is a construct describing the cognitive process a person uses to identify moral issues and formulate possible courses of action to resolve moral dilemmas (Fisher and Ott 1996). Kohlberg (1981) argued that moral reasoning is a function of a person's level of moral development, which is an enduring component of a person's cognitive makeup. Pursuant to Kohlberg's model, there are three levels of moral development (Pre-conventional, Conventional, and Post-conventional), with each level being subdivided into two stages, yielding six stages in all. Each of the six stages is considered to be cognitively higher than the previous stage. In the Kohlberg model, Stage 5 constitutes the initial stage of the Post-conventional level of moral development. At Stage 5, an individual engages in moral reasoning based on social contracts, natural law, and utilitarianism. This stage relies on achieving consensus through due process (i.e. written constitutions and legal codes). After Stage 5, the ultimate stage of moral development is Stage 6, where moral reasoning is based on unwritten, global ethical principles. Moral reasoning in Stage 6 involves theories of justice and human rights, even if this means violating laws or regulations. Kohlberg argued that people progress from lower to higher stages of moral development throughout life, and that education and training can help people to achieve higher stages of moral development.

A popular instrument for measuring Kohlberg's theory of moral development is the Defining Issues Test (DIT) (Rest, 1979, 1986), the DIT is a self-administered, multiple-choice questionnaire. Six dilemmas are used in the full-version of the DIT.[3] Each scenario is accompanied by 12 questions (for a total of 72) which are designed to provide diagnostic information about different schemes of fairness (Rest, 1986). The subject ranks the importance of

each diagnostic item to the resolution of a particular dilemma using a four-level scale. While several indices have been developed from the DIT, the most commonly used is the P-score; the P stands for principled moral reasoning (Rest, 1994). The P-score is based on the relative importance that a person places on items representing Stages 5 and 6 in the hierarchy of moral development (Rest, 1994). There has been a great deal of prior research using the DIT, both in accounting and other disciplines. Rest (1994: 13) summarized the results of these studies and reported that the ''test–retest correlation of the DIT (over a period of several weeks) averages 0.80, while the internal reliability of the DIT also averages about 0.80 (Chronbach's α).''

In a review of prior studies of accounting students' P-scores, Ponemon and Gabhardt (1993) report that accounting students have P-scores that are consistently lower than liberal arts students. Ponemon (1993) found the same result in a study of professional accountants and he concluded that there may be a selection–socialization effect in which auditors tend to select and keep colleagues who have similar levels of ethical reasoning. Abdolmohammadi et al. (2003) also find the same results for a sample of staff auditors. There has been criticism leveled against the accounting profession that it is too narrowly rule-based. Consistent with these criticisms, it may be that the value preferences of some accountants for ''Conformity'' values may lead to lower scores on measures of moral reasoning (Abdolmohammadi et al., 1997).

Relationship of personal values and moral reasoning

Surprisingly there have been very few studies investigating the relationship between personal values and moral reasoning. Weber (1993: 455) argued that research on the relationship between personal values and behavior misses the step of moral reasoning and that research on the relationship between moral reasoning and behavior misses the antecedent influence of personal values. Weber used this logic to investigate the relationship between RVS values and moral reasoning. He argued, and provided evidence, that while Personal and Competence value factors are associated with stage 3 of the Kohlbergian model, Social factors are associated with stage 4, and Moral and Social factors are associated with stage 5 of moral reasoning. Weber (1993) examined the value preferences of 111 graduate business students to test his expectations. He also used a written version of Kohlberg's original Moral Judgment Interview (not the DIT instrument) to identify the stage of moral reasoning of his subjects.

There have been two problems with the four-factor model of RVS. The first is that confirmatory factor analyses has produced weak results, leading researchers (e.g., Crosby et al., 1990) to develop the seven-factor model. Second, the relationship between the four factors and behavior has been mixed (cf., Brief et al., 1996; Wright et al., 1997). As reported below, we find support for the seven-factor model, but only weak support for the four-factor model. Thus, we have concentrated on the relationship of the seven-factor model and moral reasoning. In particular, based on previous arguments in the literature that accountants' conformity with rules and regulations may be associated with lower P-scores, we present the following hypothesis:

H_1: ''Conformity'' values of graduating accounting students are inversely related to their levels of moral reasoning.

Since there is no clear theory to predict the direction of the effects of the remaining factorial variables on moral reasoning, we investigate the relationship between moral reasoning and Crosby et al.'s (1990) remaining factors in a more descriptive fashion in the form of a research question.

RQ_1: Are RVS values of graduating accounting students, other than ''Conformity'' values, systematically related to their level of moral reasoning?

Multiple regression model

We perform various univariate and multi-variate tests in the course of our analysis. For the multivariate analysis, we use the general linear Model expressed in equation (1) which is constructed based on Crosby et al.'s (1990) seven-factor model, as shown in Table I.

$$\text{P-Score} = \alpha + \beta_1 \text{Hedonism} + \beta_2 \text{Self-Act} + \beta_3 \text{Security} + \beta_4 \text{Idealism} + + \beta_5 \text{Self-Dir} + \beta_6 \text{Conformity} + \beta_7 \text{Virtuous} + \beta_8 \text{BegEnd} + \varepsilon \quad (1)$$

where P-Score = Ethical reasoning as measured by the DIT P-Score, Hedonism = Hedonism values, Self-Act = Self-Actualization values, Security = Security values, Idealism = Idealism values, Self-Dir = Self-Direction values, Conformity = C onformity values, Virtuous = Virtuous values, BegEnd= dummy variable representing the beginning (0) and end (1) of the semester, ε = Error term.

Research method

The subjects in this study were 164 students (90 female and 74 male) enrolled in six sections of two capstone accounting courses at two universities in Northeastern United States. The students were completing their accounting educations at either undergraduate or graduate levels. Therefore, they can be viewed as entry-level professional accountants. The subjects comprised students enrolled either in a Masters of Science in Accountancy (MSA) program at a private university or a capstone undergraduate course in financial statements analysis at a state university. Experimental data were collected using the DIT and RVS instruments. These data were collected both at the beginning and the end of the semester (pre and post).

Administering and scoring the RVS

Previous studies using the RVS have administered the instrument in different ways. For example, Baker (1976) asked subjects to arrange 18 computer punch cards from the highest preference to the lowest for each of the 18 Instrumental and Terminal values. The package of punch cards was then processed by a computer to produce a preference ranking for each value. In more recent studies (e.g., Shafer et al. 2001; Wright et al., 1997), value preferences were identified through Likert scales. Compared with Baker's (1976) punched cards, the Likert scale used in later studies produces data that have desirable properties for statistical analysis. However, a problem with the Likert scale is that it does not force subjects to make clear distinctions between different values (i.e., the same Likert scale number could be assigned to more than one value, which results in a bias toward the mean).

In the current study we employed a method of administering the RVS, which blends the merits of forced ranking with the ability to perform statistical analysis. Subjects were asked to group the 18 Instrumental values into five groups (four in the highest ranked group; four in the second highest ranked group; four in the third highest ranked group; three in the fourth highest ranked group; and three in the lowest ranked group). Numbers ranging from 5 (highest) to 1 (lowest) were assigned to the groups of RVS values, thus producing a score for each value. The same procedure was followed for Terminal values. While recognizing that this method also permits subjects to assign the same ranking to more than one value (i.e., four of the values could be assigned the highest score of five), it nevertheless forces subjects to make clear choices among groups of values.

Results

Test/retest reliability of RVS preferences and P-values

Table II provides descriptive statistics for the preference rankings for the Terminal and Instrumental values at the beginning and the end of the semester. For each value, the means and standard deviations are provided along with the matched-pair differences and standard deviations. The last column presents the matched-pair *t*-statistic and its significance.

Our data indicate a high level of test/retest reliability. Specifically, for the 18 Terminal values, only two show significant statistical differences. Of these, ''A World of Beauty'' is marginally significant at the 0.061 level (*t*-statistic = 1.89) and ''Family Security'' is significant at the 0.015 level (*t*-statistic = 1.89). The remaining 16 values are not significantly different at the beginning and the end of the semester. Similarly, only three of the 18 Instrumental values indicate significant differences. While two of these values (''Independent'' and ''Intellectual'') are marginally different, the third one (''Logical'') is

TABLE II

Beginning and end of semester RVS preferences and P-values (N = 328)

No.		Beg. preferences mean (Std Dev) (N = 164)	End. preferences mean (Std Dev) (N = 164)	Difference (Std Dev)	Matched-Pair t-stat (Sig.)
Terminal values					
1.	A comfortable life	3.72 (1.22)	3.71 (1.22)	0.01 (1.05)	0.15 (0.881)
2.	A sense of accomplishment	4.04 (0.97)	4.01 (1.09)	0.03 (1.27)	0.31 (0.756)
3.	A world at peace	2.92 (1.43)	2.93 (1.29)	−0.01 (1.22)	−0.06 (0.949)
4.	A world of beauty	1.84 (1.04)	1.81 (1.04)	0.03 (1.29)	0.37 (0.714)
5.	An exciting life	2.70 (1.32)	2.52 (1.37)	0.18 (1.25)	**1.89 (0.061)**
6.	Equality	2.89 (1.23)	2.96 (1.25)	−0.06 (1.12)	−0.71 (0.481)
7.	Family security	4.27 (0.95)	4.07 (1.11)	0.20 (1.03)	**2.45 (0.015)**
8.	Freedom	3.85 (0.92)	3.94 (0.94)	−0.09 (1.04)	−1.13 (0.261)
9.	Happiness	4.30 (0.83)	4.28 (0.95)	0.02 (1.03)	0.15 (0.879)
10.	Inner harmony	2.96 (1.27)	3.06 (1.27)	−0.10 (1.41)	−0.89 (0.374)
11.	Mature love	3.35 (1.26)	3.47 (1.38)	−0.12 (1.42)	−1.06 (0.292)
12.	National security	2.63 (1.19)	2.69 (1.17)	−0.06 (1.23)	−0.71 (0.480)
13.	Pleasure	2.55 (1.08)	2.69 (1.17)	−0.14 (1.29)	−1.41 (0.161)
14.	Salvation	1.83 (1.14)	2.05 (1.27)	−0.22 (1.06)	−2.60 (0.010)
15.	Self-respect	4.06 (0.99)	3.95 (1.09)	0.11 (1.03)	1.38 (0.171)
16.	Social recognition	1.97 (1.17)	1.96 (1.19)	0.01 (1.15)	0.07 (0.946)
17.	True friendship	3.85 (1.14)	3.70 (1.16)	0.15 (1.28)	0.90 (0.370)
Instrumental values					
1.	Ambitious	3.49 (1.33)	3.39 (1.36)	0.10 (1.19)	1.12 (0.263)
2.	Broadminded	2.97 (1.37)	2.86 (1.30)	0.11 (1.30)	1.08 (0.280)
3.	Capable	3.51 (1.06)	3.43 (1.22)	0.08 (1.28)	0.80 (0.424)
4.	Cheerful	2.69 (1.30)	2.56 (1.23)	0.12 (1.28)	1.22 (0.223)
5.	Clean	2.65 (1.21)	2.59 (1.16)	0.06 (1.19)	0.60 (0.548)
6.	Courageous	2.72 (1.40)	2.84 (1.23)	−0.12 (1.30)	−1.22 (0.225)
7.	Forgiving	2.88 (1.18)	2.95 (1.22)	−0.07 (1.34)	−0.65 (0.518)
8.	Helpful	3.38 (1.18)	3.40 (1.03)	−0.02 (1.29)	−0.24 (0.807)
9.	Honest	4.55 (0.83)	4.46 (0.91)	0.09 (0.92)	1.19 (0.235)
10.	Imaginative	1.99 (1.17)	1.98 (1.12)	0.01 (1.21)	0.13 (0.897)
11.	Independent	3.51 (1.30)	3.72 (1.34)	−0.19 (1.35)	**−1.92 (0.057)**
12.	Intellectual	3.23 (1.32)	3.42 (1.29)	−0.19 (1.41)	**−1.67 (0.097)**
13.	Logical	3.21 (1.23)	3.00 (1.29)	0.21 (1.30)	**1.97 (0.050)**
14.	Loving	3.74 (1.25)	3.78 (1.30)	−0.04 (1.22)	−0.45 (0.651)
15.	Obedient	1.74 (1.01)	1.78 (1.08)	−0.4 (1.15)	−0.48 (0.631)
16.	Polite	3.22 (1.17)	3.10 (1.25)	0.12 (1.38)	1.10 (0.275)
17.	Responsible	4.60 (0.73)	4.54 (0.83)	0.06 (1.00)	0.70 (0.483)
18.	Self-controlled	3.05 (1.27)	3.20 (1.25)	−0.15 (1.29)	−1.47 (0.145)
Ethical reasoning					
	P-Score	35.47 (13.04)	35.68 (12.91)	0.20 (10.16)	−0.24 (0.808)

different only at the 0.05 level. The remaining 15 Instrumental values are not significantly different. Even for the values showing significant differences, they do not appear to be practically different. For example, the Instrumental value, ''Logical,'' which is significant at the 0.05 level, has a mean of 3.21 at the

beginning of the semester and a mean of 3.00 at the end of the semester. This indicates that the subjects' preference rankings were at the middle of the 5-point ranking scale.

Given the limited range of the scale (1–5) for the preference rankings, we also performed a the Kruskal–Wallis test of the medians (not tabulated) for all of the 36 Terminal and Instrumental values. The results of these tests were consistent with those of the *t*-tests reported above. Specifically, of the 36 Terminal and Instrumental values only one value (''Independent'') showed a marginally significant difference with a Kruskal–Wallis *H*-statistic of 2.75 ($p = 0.097$). The remaining 35 values did not indicate any significant differences between the beginning and end of semester. Thus, we are very confident about the stability of the subjects' RVS value preferences.

Comparison of the DIT P-Scores at the beginning and the end of the semester also provides evidence of test/retest reliability. Specifically, while the average P-score of the students was 35.47 at the beginning of the semester, it was 35.68 at the end of the semester, and this difference of only 0.20 (with a wide standard deviation of 10.16) was not significant (*t*-statistic = 0.24, $p = 0.808$).

RVS value preference factors

We performed a series of confirmatory factor analyses using the SPSS Amos-5 Structural Equation Modeling (SEM) software to verify Rokeach's (1973) four-factor RVS model and Crosby et al.'s (1990) seven-factor classification. We did not find a reasonable factor loading for the two-factor (Personal/Social) classification of Terminal values. The results for two-factor Instrumental values were more encouraging because values loaded into the two factors of Competence and Moral as expected.

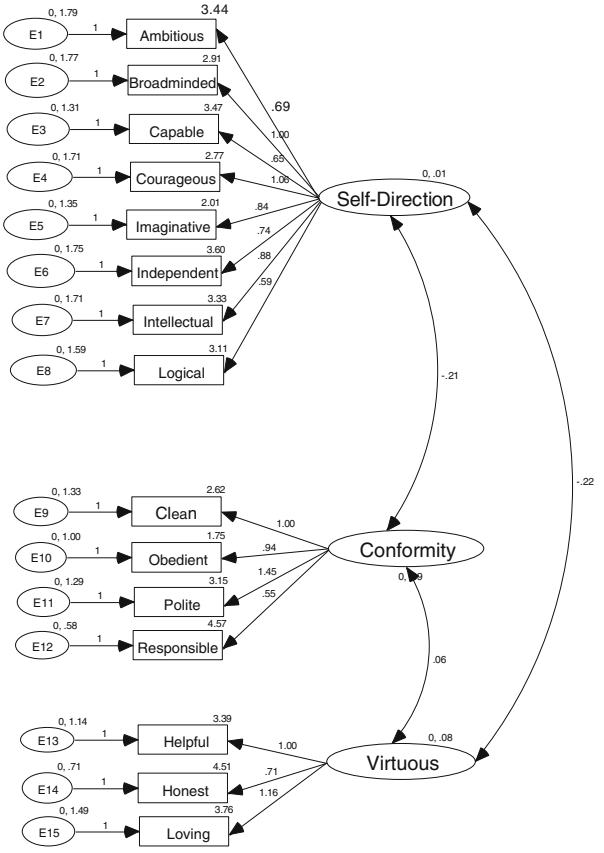

Figure 1. Confirmatory factor analysis of instrumental values.

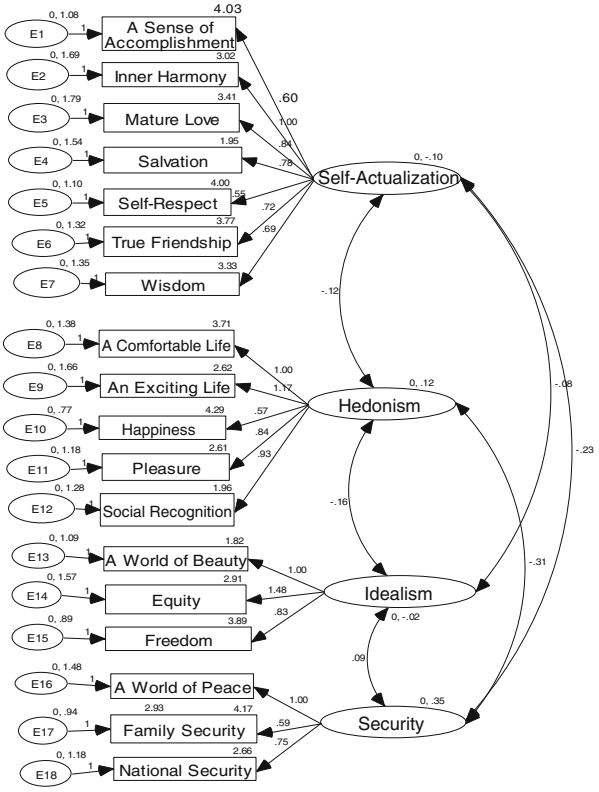

Figure 2. Confirmatory factor analysis of terminal values.

Overall, we do not find strong support for the four-factor classification model.

We find strong support for the classification of Instrumental values into Conformity, Virtuous, and Self-direction factors. These results are presented in Figure 1. Specifically, of the 18 Instrumental values, 15 loaded with statistically significant coefficients. The remaining three values (''Cheerful,'' ''Forgiving,'' and ''Self-controlled'') had negative coefficients and therefore did not load on these three factors. Shafer et al. (2001) also reported loading of only 15 Instrumental values. The three that did not load in the Shafer et al. model were ''Imaginative,'' ''Intellectual,'' and ''Self-controlled.'' The model presented in Figure 1 is statistically significant at the 0.000 level. The factor loading coefficients are also highly significant.

As reported in Figure 2, the Terminal values also loaded on the four factors of Hedonism, Self-Actualization, Idealism, and Security. This model was highly significant at the 0.000 level. Thus we find strong support for the seven-factor classification of Terminal and Instrumental values. However, we also find that the correlations between the factors (called latent variables) are statistically significant. This result indicates a violation of the SEM rules because latent variables should not be highly correlated. Thus, for the test of our hypothesis and research question, we prepared a correlation matrix and dropped those factors that are highly correlated with other factors to mitigate concerns about multi-colinearity. We then use regression analysis to test Model (1).

Seven-factor value preferences

As reported in Table III, analysis of variance shows highly significant differences for the four Terminal value factors (F-statistic = 41.00, p = 0.000) and the three Instrumental value factors (F-statistic = 163.08, p = 0.000). The Terminal value factors range from 3.36 for Self-Actualization to 2.87 for Idealism. The three-factor Instrumental values range from 3.65 for Virtuous to 2.94 for Conformity. This is an interesting finding in that while accountants are assumed to be strong in their conformity with rules and regulations, their preference for ''Conformity'' values is the lowest among the three Instrumental value factors. In the next section we investigate the relationship between this and other factors with accountants' moral reasoning.

Multi-variate analysis for H_1 and RQ_1

Table IV provides a correlation matrix between the seven RVS value factors and the BegEnd (beginning and end of semester) variable in Model (1). Consistent with the test–retest results, the BegEnd variable is not significantly correlated with any of the value factors. Also, consistent with the results reported in the SEM analysis, some of the value factors are significantly correlated with each other. For example, ''Self-Direction'' is highly correlated (i.e., with Pearson correlation coefficient greater than 0.500) with ''Conformity'' and ''Virtuous,'' causing concerns for multi-colinearity. Thus for purpose of regression analysis we dropped

TABLE III

Preference rankings of RVS seven value factors (N = 328)

Values	Factors	Mean	Std Dev
Terminal	Self-actualization	3.36	0.39
	Security	3.25	0.79
	Hedonism	3.04	0.59
	Idealism	2.87	0.61
	F-statistic (Sig.)	41.00 (0.000)	
Instrumental	Virtuous	3.65	0.63
	Self-direction	3.08	0.40
	Conformity	2.94	0.50
	F-statistic (Sig.)	163.08 (0.000)	

TABLE IV

Correlation matrix

Factors	Beg End	Hedonism	Self-act.	Security	Idealism	Self-direction	Conformity
Hedonism	−0.002						
	(0.965)						
Self-act.	0.003	−0.336					
	(0.959)	(0.000)					
Security	−0.030	−0.467	−0.454				
	(0.585)	(0.000)	(0.000)				
Idealism	0.025	−0.440	−0.297	0.154			
	(0.660)	(0.000)	(0.000)	(0.006)			
Self-direction	0.019	0.181	0.022	−0.168	−0.006		
	(0.739)	(0.001)	(0.698)	(0.003)	(0.913)		
Conformity	−0.075	0.095	−0.091	0.074	−0.077	−0.657	
	(0.182)	(0.090)	(0.106)	(0.190)	(0.171)	(0.000)	
Virtuous	−0.001	−0.332	0.105	0.175	0.100	−0.704	0.072
	(0.979)	(0.000)	(0.062)	(0.002)	(0.074)	(0.000)	(0.201)

Pearson correlation coefficient of independent variables (Significance).
BegEnd = beginning (0) or end (1).

TABLE V

Regression results

Predictor	Hypothesized sign	Coefficient	*t*-statistic	Significance	
Constant		27.83	2.75	0.006	
Self-actualization	?	6.35	3.19	0.002	
Idealism	?	3.66	2.96	0.003	
Conformity	–	−6.18	−4.33	0.000	
Virtuous	?	−1.61	−1.41	0.160	
BegEnd	0	−0.737	−0.52	0.606	
Model R^2 = 12.0%, adjusted R^2 = 10.4%					
Analysis of variance					
Source	DF	SS	MS	F	P-value
Regression	5	5733.5	1146.7	7.78	0.000
Residual error	286	42150.8	147.4		
Total	291	47884.4			

Model: $\text{P-Score} = \alpha + \beta_1 \text{Self-Act} + \beta_2 \text{Idealism} + \beta_3 \text{Conformity} + \beta_4 \text{IVirtuous} + \beta_5 \text{BegEnd} + \varepsilon$ where P-Score = ethical reasoning as measured by the DIT P-Score, Self-Act = Self-actualization values, Idealism = Idealism values, Conformity = Conformity values, Virtuous = Virtuous values, BegEnd = is a dummy variable representing the beginning (0) and end (1) of the semester, ε = Error term.

Self-Direction from Model (1). With a Pearson correlation coefficient of −0.454 "Security" and "Self-Actualization" are also approaching the critical 0.500 level. Thus, we also drop "Security." Finally, we drop "Hedonism" from Model (1) because of its correlation coefficient of 0.440 with Idealism. This leaves the four value factors of Self-actualization, Idealism, Conformity, and Virtuous, as well as the BegEnd variable in Model (1). We analyzed the effects of the dropped factors, as described in the "Sensitivity analysis" section of the paper below.

Table V presents the results of the regression analysis. Model (1) is highly significant at the 0.000 level (*F*-statistic = 7.78), indicating that the model is capable of explaining the relationship between the P-score, the four RVS factors and the BegEnd variable. The amount of variation explained by the model is 10.4%. The constant is highly significant (*t*-statistic = 2.75, $p = 0.006$) indicating that the model is missing other important independent variables. The BegEnd variable is not significant, which is consistent with the test/retest results, while the value factors are all significant, except for ''Virtuous.'' Specifically, as predicted by H_1, ''Conformity'' is highly and inversely related to the P-score (*t*-stat = −4.33, $p = 0.000$). With regard to RQ_1, we find that ''Self-Actualization'' and ''Idealism'' are positively and significantly related to the P-score.

Sensitivity analysis

In this section, we report several changes that we made to Model (1) to test the effects of these changes. First, we entered a number of demographic variables (e.g., age, gender) and found that the results did not change, although the significance levels changed a bit in some cases. We dropped the BegEnd variable from Model (1), and also found the results to hold. In this case, the adjusted R^2 improved from 10.4 to 10.7%.

We then expanded the list of independent variables to include all of the factors shown in Table I. For Weber's (1990) classification we performed an analysis of variance and found differences in value preferences that were consistent with those found by Wright et al. (1997) (*F*-Statistic = 95.55, $p = 0.000$). However, when the P-score was regressed against Weber's (1990) factors, the model was not significant (*F*-statistic = 1.38, $p = 0.232$) and none of the factors had a significant correlation with the P-score. This result may be because the confirmatory factor analysis failed to load on many of the RVS values in Weber's (1990) four-factor classification.

It should be recalled that we dropped three factors from Crosby et al.'s (1990) seven-factor classification (Model 1) because of concerns for multi-colinearity. We added these factors back and ran the model with all seven factors. The model indicated significance (*F*-statistic = 4.82, $p = 0.000$). However, the adjusted R^2 dropped from 10.4 to 9.7%. Also, the only factor showing significance was ''Conformity'' (*t*-stat = 2.02, $p = 0.045$). The model did not show significance for the constant or any other factor.

Finally, we included all of the 36 Terminal and Instrumental values in a regression model. The result was that the regression model was highly significant (*F*-statistic = 2.79, $p = 0.000$) and had an adjusted $R^2 = 18.5\%$. The constant and 32 of the 36 Terminal and Instrumental values in this model were not significant. The four values that were significant included ''Honest,'' with an inverse coefficient of −2.26 (*t*-statistic = −2.07, $p = 0.039$) and three Terminal Values, including ''A Comfortable Life'' (*t*-statistic = −1.89, $p = 0.061$), ''A Sense of Accomplishment'' (*t*-statistic = 2.56, $p = 0.011$), and ''Inner Harmony'' (*t*-statistic = −1.71, $p = 0.089$).

Discussion

Consistent with prior research (Baker, 1976; Shafer et al., 2001; Wilson et al., 1998) the findings of our study indicate that graduating accounting students demonstrate a preference for RVS values such as Honest, Responsible, Family Security, Self-Respect and Inner Harmony, and that they do not prefer values like Obedient, Clean, Polite, Equality, A World of Beauty. These preferred and non-preferred values correspond to a sort of ''accountant's value preference'' stereotype. Factor analytic approaches to the study of RVS values generally do not capture this ''accountant's value preference'' stereotype. However, the seven-factor classification schemes of Crosby et al. (1990) and Shafer et al. (2001) indicate that accountants have a preference for ''Self-Actualization'' values (including ''Self-Respect''), ''Security'' values (including ''Family Security'') and ''Virtuous'' (including ''Honesty''). Thus, the seven-factor classification is consistent both with prior studies and with the rank-orderings of individual values within these studies.

Our findings also indicate that there is a positive correlation between ''Self-Actualization'' values (''Mature Love,'' ''Self-Respect,'' ''True Friendship,'' and ''Wisdom'') and higher P-scores. This may be because these values are associated with the indicators of principled moral reasoning that underlie the DIT. Since graduating accounting

students demonstrate a preference for ''Self-Actualization'' values in comparison with the other factors among the Terminal values, and because ''Self-Actualization'' values appear to be correlated with higher P-scores, this is a positive sign for accountants' moral reasoning in that accounting students appear to prefer values that are associated with higher moral reasoning.

A more troubling finding is that graduating accounting students do not demonstrate a preference for ''Idealism'' values (like ''Equality''), even though Idealism values are positively correlated with the P-score. What this appears to mean is that accounting students do not generally prefer ''Idealism'' values, but if they do prefer such values then they also have higher P-scores. The implication of this finding is that if the accounting profession wants to obtain entry-level accountants with high P-scores it may want to focus on students who demonstrate a preference for ''Idealism'' values.

Finally, consistent with prior literature, except for ''Responsible,'' accounting students do not demonstrate a preference for ''Conformity'' values (''Obedient,'' ''Polite,'' and ''Clean''). However, if they do demonstrate a preference for ''Conformity'' values, then they also have lower P-scores. The implications of this finding are not clear. On the one hand, accounting students who demonstrate a preference for ''Conformity'' values have lower P-scores; therefore, these students would not necessarily be desirable candidates for entry into the profession. On the other hand, graduating accounting students as a whole do not demonstrate a preference for ''Conformity'' values; therefore, there is reason to be optimistic because persons who do not prefer ''Conformity'' values generally have higher P-scores. Thus, the overall implication for the profession may be that it should concentrate on candidates who demonstrate ''Self-Actualization'' and ''Idealism'' values, but not ''Conformity'' values. This appears to be the profile of the graduating accounting students who would be desirable candidates for entry into the accounting profession.

Summary and implications

In this study, we investigated the relationship between Rokeach values and principled moral reasoning. Using a test/retest of Rokeach values at the beginning and the end of the semester we confirmed the reliability of our forced rank procedure in eliciting graduating accounting students' value preferences. There was an interesting finding, in that while ''Conformity'' values are ranked lowest in preference, they are nevertheless inversely related to students' moral reasoning. We also find that accountants' value preferences for ''Self-actualization'' and ''Idealism'' values are positively related to the P-score. However, the ''Virtuous'' factor does not have a significant relationship with the P-score. Regarding Weber's (1990) four-factor RVS classification, we found negative or zero factor loadings for these values, thus we did not support a relationship between Weber's factors and moral reasoning. However, we did find significant support for the seven-factor models of Crosby and Shafer.

Rokeach (1973) argued that values are enduring. The test/retest results of our study indicate reliability of the constructs over the time period of one semester. We cannot make a generalization from this finding to the endurance of values through time. Future research is needed to address this issue. The DIT P-Score also showed test/retest reliability during the semester. However, since age and education have a significant effect on moral reasoning (Rest, 1994), one can argue that the P-score may actually improve over a longer period of time. This issue also awaits future research.

We hypothesize and find evidence that ''Conformity'' is inversely related to the P-score. Thus, we find support for the argument that accountants tend to follow rules and regulations and, thus, they cannot be expected to score high on the DIT, which measures one's ability to reason at the principled stage of Kohlbergian theory of moral development. However, arguments have been put forward to both make accounting standards more principle-based and to train accountants' in higher levels of moral reasoning. This may be required if accountants are to withstand client pressures. The widespread scandals of recent years indicate that accountants need to follow principled moral reasoning rather than just follow the rules.

The positive aspects of the ''Self-actualization'' and ''Idealism'' factors make intuitive sense. However, we do not have a theory to explain these findings, and we are not aware of any. Future

research is needed to provide theory and additional results relating to these findings.

Finally, we collected data from graduating accounting students as surrogates for professional accountants. If values and moral reasoning are enduring then these subjects can be assumed to be good surrogates for professional accountants. However, we cannot be sure of that conclusion. Future research using professional accountants as study subjects may be a more direct way to address this issue.

Notes

[1] Factor analysis has been a popular method of analysis in RVS research (e.g., Braithwaite and Law, 1985; Crosby et al., 1990; Feather and Peay, 1975; Frederick and Weber, 1987; Johnston, 1995; Jones et al. 1978; Rokeach, 1973; Schwartz and Bilsky, 1987; Shafer et al., 2001; Weber, 1990).

[2] Jones (1991) defines moral intensity is defined as a ''construct that captures the extent of issue-related moral imperative in a situation.'' Jones (1991) argues that moral intensity is dependant on a number of dimensions such as the magnitude of consequences and the probability that the effect will occur.

[3] Rest and Narvaez (1998) have introduced a newer version of the DIT called DIT-2. However, we use the original DIT in our research. A reason for this is that the current study is one in a series of studies in which we have used the DIT, and for comparative purposes the use of the original DIT is convenient. A more important reason is that the developers of the DIT and DIT-2 acknowledge that while DIT-2 is shorter, has clearer instructions, purges fewer subjects for bogus data, and is slightly more powerful on validity criteria, the scores in DIT-1 and DIT-2 are actually highly correlated (Center for the Study of Ethical Development 2004). DIT-2 also indicates that the old test (''DIT-1'') can be replicated (Ibid).

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