

The Effects of Moral Reasoning and Self-Monitoring on CFO Intentions to Report Fraudulently on Financial Statements

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ABSTRACT. This study adapts the theory of reasoned action (Ajzen and Fishbein, 1980) to the behavior of fraudulent reporting on financial statements so as to examine the effects of moral reasoning and self-monitoring on intention to report fraudulently, using structural equation modeling. The paper seeks to investigate two of the red flags for financial statement fraud identified in Loebbecke et al.'s (1989) paper: client management displays a significant lack of moral fiber and client personnel exhibit strong personality anomalies. As expected, high moral reasoners are more influenced than low moral reasoners by their own attitude towards the behavior. Contrary to prior research, low self-monitors are found to be more influenced than high self-monitors by subjective norms. Future research is recommended to investigate the counter-intuitive results for self-monitors, to consider the implications of group decision making as regards the promulgation of fraudulent financial statements, and to examine additional red flags for financial statement fraud.

KEY WORDS: financial statement fraud, moral reasoning, reasoned action model, self-monitoring, structural equation modeling

1. Introduction

Management financial statement fraud is a very pertinent topic within the field of business ethics that concerns public accountants in particular. *Statement of Auditing Standard (SAS) No. 82* (American Institute of Certified Public Accountants, 1997) requires an auditor specifically to assess the risk of material misstatement due to fraud and defines fraud as two types of intentional material misstatement of the financial statements: fraudulent financial reporting, and misstatements arising from misappropriations of assets. The present study considers only fraudulent financial statement reporting.

Palmrose (1987) describes the role of business failures and management fraud in both legal actions brought against auditors and the settlement of such actions. She finds that a majority of lawsuits involving bankrupt clients also involve management fraud and that, overall, management fraud is present in half the litigation cases. Such cases have caused an increase in litigation costs for auditors. Prior research (Palmrose, 1987; Loebbecke et al., 1989) has also indicated that management fraud is the most common factor in litigation cases and that financial statement fraud is typically committed by top management. The purpose of this research is to understand the cognitive and personality characteristics that influence management's intention to report fraudulently on the financial statements. This study adapts the theory of reasoned action (Ajzen and Fishbein, 1980) to the behavior of fraudulent financial statement reporting to examine the affects of moral reasoning and self-monitoring on

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management's intention to report fraudulently on financial statements.

The principal findings of the study are that: (a) high moral reasoners are more influenced than low moral reasoners by their own attitude towards the behavior; (b) low self monitors, contrary to prior research, are more influenced than high self-monitors by subjective norms.

The second section of this paper develops the theory and hypotheses to be tested. The third section describes the methodology employed, and the fourth section discusses reliability and validity. The results and analysis are presented in the fifth section, and our conclusions and future research plans are set out in section six.

2. Theory and hypotheses

Theory of reasoned action

Ajzen and Fishbein (1980) present the theory of reasoned action for the prediction of behavioral intentions and corresponding behaviors. In the

reasoned action model behavioral intentions are assumed to mediate overt behavior. Behavioral intentions are a joint function of the attitude towards performing the behavior and subjective norms. The "attitude towards performing the behavior" construct incorporates the individual's belief about the likelihood that the behavior will result in a particular outcome and the person's evaluation of that outcome. The "subjective norms" construct incorporates the beliefs of specific referents and the individual's motivation to comply with these referents. A referent is an individual or group of individuals whose opinions have influence on the subject's decision process.

Figure 1 is our representation of Ajzen and Fishbein's (1980) model of reasoned action. The researchers measure each variable with either Likert scales or semantic differential scales.

Burnkrant and Page (1988) extended this model to show that both the normative belief motivation to comply and the expectancy value attitude constructs exist as multidimensional constructs. The present authors, Gillett and

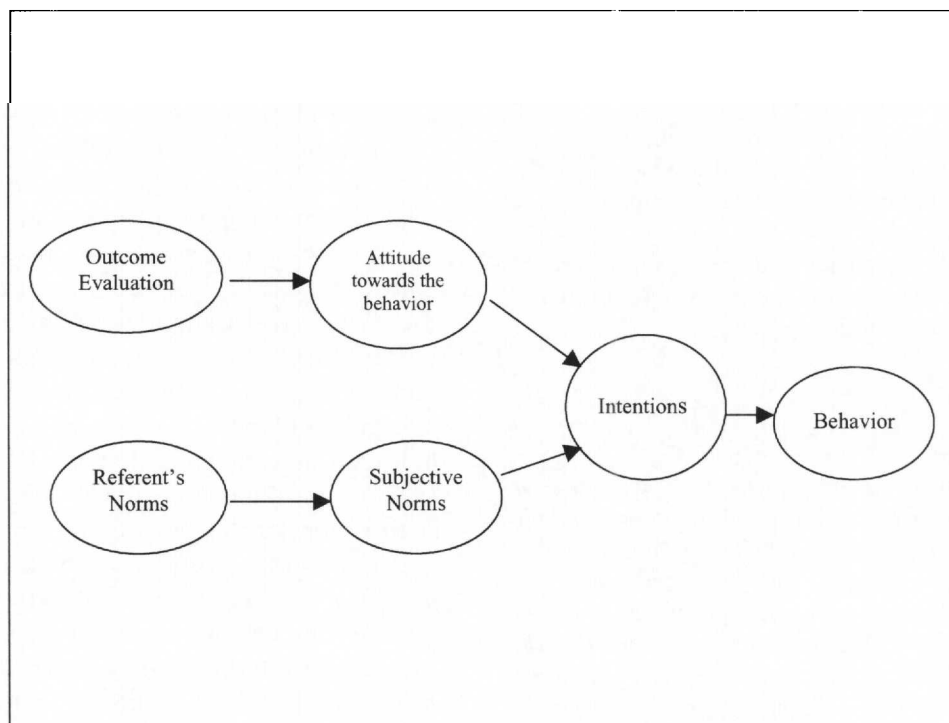


Figure 1. Interpretation of Ajzen and Fishbein's (1980) extended model.

Uddin (2002), expand on the Burnkrant and Page (1988) model and fit the model to intention to report fraudulently on financial statements; they also add constructs representing company size, compensation structure, and need for achievement to the model. Figure 2 is a diagrammatic representation of their Gillett and Uddin (2002) model.

Intention is directly affected by attitude towards the behavior, subjective norms, size, and compensation structure. The belief-evaluation products are modeled as two-dimensional constructs (Burnkrant and Page, 1988). Positive belief evaluation products and negative belief evaluation products are expected to be strongly

correlated (Burnkrant and Page, 1988). Positive belief evaluations (P) are a latent variable that combines our expectations of the likelihood of outcomes with evaluations of those outcomes, for outcomes expected to reinforce the behavior. Negative belief evaluations (N) are a latent variable that combines our expectations of the likelihood of outcomes with evaluations of those outcomes, for outcomes expected to inhibit the behavior. Together with need for achievement (NACH), positive and negative belief evaluations affect managers' attitudes towards the behavior (A).

Salient referents were originally also modeled as two-dimensional constructs based on responses

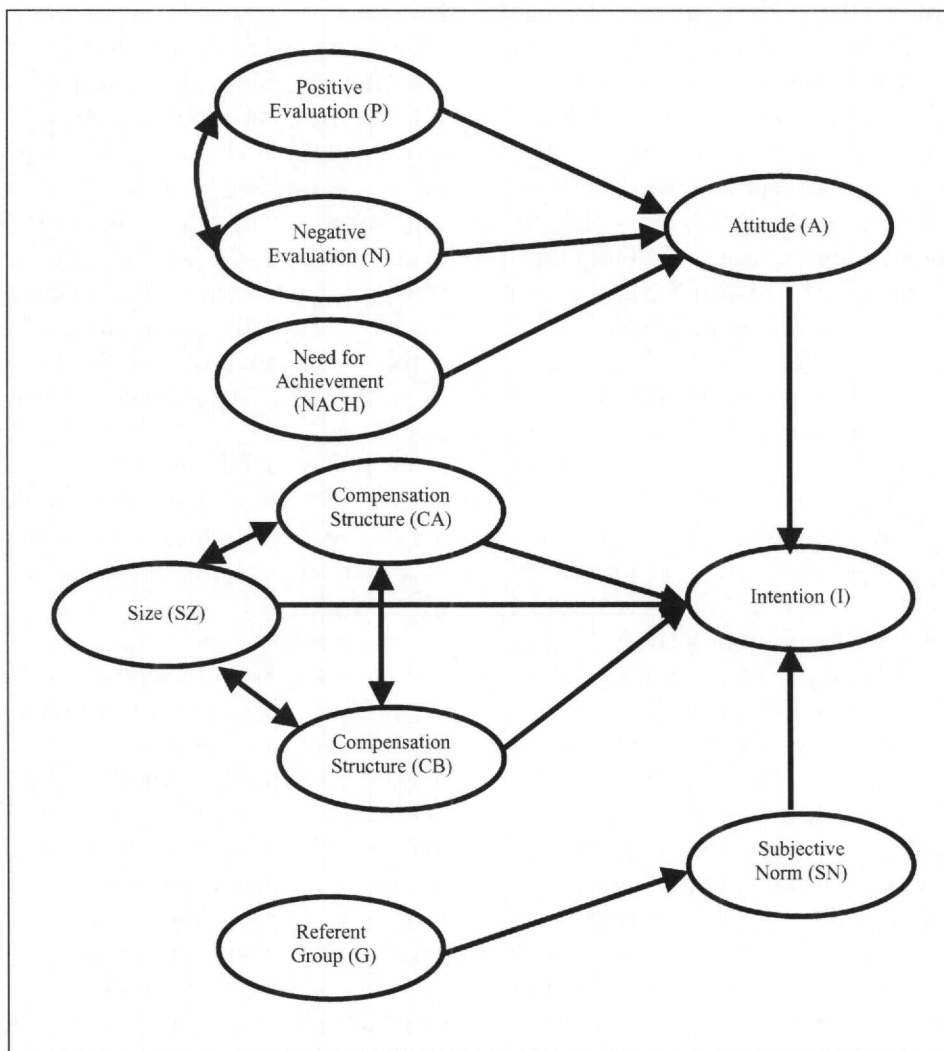


Figure 2. The Gillett and Uddin (2002) model.

from a pre-test group. It was anticipated that the salient referents would form two related groups: coworkers, including superiors within the corporation; and non-coworkers, including friends and family members. Using the data collected, however, the final model was based on a single referent group latent variable (G) that affects managers' subjective norms (SN).

The model also includes two other factors affecting intention: a single latent variable for size (SZ), and two correlated latent variables capturing different aspects of compensation structure (CA and CB). Actual fraudulent behavior is not measured in this study, which is based on survey data regarding hypothetical scenarios.

This study, Gillett and Uddin (2002), finds that attitudes towards the behavior and company size significantly affect managers' intentions to report fraudulently on the financial statements but that, contrary to the expectations of the auditing literature, compensation structure is not a significant indicator. The Satorra-Bentler chi-square statistic for this model is 321.679 with 261 degrees of freedom and a robust CFI = 0.958 indicating an excellent fit of this model to the data. A large number of different measures of fit have been developed for structural equation models, primarily by proponents of either the EQS or LISREL software. No one measure seems perfect for all purposes, and each has its own supporters. Our preferred measure here, and in other studies, is the Comparative Fit Index (CFI), which is the latest of a sequence of measures produced by Bentler, the developer of the EQS package we use for our analysis. CFI is a normed measure: in other words, it takes values in the range 0–1, like the familiar R^2 . For this, as for other measures, there has been much debate about the level at which a good fit of the model to the data is indicated. Our study follows Byrne (1994, p. 55) and many others, along with practice in many applications over the last decade, in regarding values over 0.9 as indicating good fit.¹ At the same time, CFI values too close to 1 might indicate overfitting of the model to the data. There is no consensus on unacceptable levels of CFI, but our own practice has been to regard CFI values below 0.8 as indicating poor fit.

Fraudulent financial statement reporting clearly represents a significant moral lapse with important and potentially devastating consequences for many people. In addition, it represents a breach of professional ethics for public accountants (and other professionals), and it seems natural to inquire what personal characteristics of a CFO might additionally impact the intention to report fraudulently. Consequently, the present study reports on the effect of moral reasoning and self-monitoring on intention to report fraudulently on financial statements.

Moral reasoning

Kohlberg (1964) defines morality as involving judgments of right or wrong. Conduct in a situation of moral conflict depends upon responsible decision-making by a person who is aware of the potential effects the decision may have on others (Kohlberg, 1984). A decision is also influenced by the decision-maker's personality characteristics, the attitude the individual has towards performing the behavior, and the social norms that surround the individual. Kohlberg's theory of moral reasoning identifies three levels of moral reasoning, each containing two stages.

Level I is called the pre-conventional level and is the level of most children under the age of nine. The moral significance of an action is seen as a real, inherent, unchanging quality; punishment is seen as important insofar as it is identified with a bad action.

Level II is the conventional level; the self is identified with or has internalized the rules and expectations of others, especially those of authorities. The individual takes the perspective of a generalized member of society. The Level II manager perceives himself as an integral part of the reference group and makes a conscious effort to keep the organization that supports the group going. Thus managers at the second level of moral reasoning will intend to perform behaviors that will make the company look better in the eyes of creditors and investors.

Level III is a post-conventional person who has differentiated herself from the rule and expecta-

tions of others and defines values in terms of self-chosen principles. This means equal consideration of the claims or points of view of each person affected by the moral decision to be made. Individuals progress sequentially through each of these levels without regressing, although not all people reach Level III. The higher a person's level of moral reasoning, the more likely it is that the person will consider alternatives that are the least destructive to those who are affected. The Level III moral reasoner considers the effect a decision has on all groups, not just the immediate social group. Thus a manager at the third level of moral reasoning considers the effect that reporting fraudulently on the financial statements has on the company, the stockholders, creditors and any other group that may be affected. Therefore, a manager who is a Level III moral reasoner is less likely to intend to report fraudulently on the financial statements than one who is a Level II moral reasoner.

The crucial issue facing individuals contemplating financial statement fraud is a breach of trust between the manager and the financial statement user. Level II moral reasoners would be unlikely to experience strong external pressures to resist the temptation (Schwartz et al., 1969), because the users of the financial statements are not manifest. On the other hand, the potential benefit of reporting fraudulently to the immediate social group of colleagues, the company and immediate family is more apparent. Level III moral reasoners, on the other hand, tend to base their choices on self-accepted principles and are more likely to choose alternatives that are not destructive to the individuals affected. They are likely to consider the consequence their choice has on the financial statement users.

Malinowski and Smith (1985) and Schwartz et al. (1969) examine the relationship of moral reasoning to cheating behavior and find that high moral reasoners are less likely to cheat. The present study extends the moral level theory to that of fraudulent reporting behavior of management. It is theorized here that individuals at a high level of moral reasoning consider the impact their behavior has on others, such as shareholders and creditors, and are less inclined

to intend to report fraudulently on the financial statements.²

H1: Subjects who are low moral reasoners express higher intention to report fraudulently than subjects at a high level of moral reasoning.

Kohlberg's theory of moral reasoning also states that individuals at the third level of moral reasoning have differentiated themselves from the rules and expectations of others and define values based on internalized principles. Thus, decision-makers at Level III are less influenced by subjective norms than decision-makers at Level II and base their decisions on attitudes towards the behavior. However the decision-makers at Level II are more influenced by subjective norms and less influenced by attitude, as compared to Level III decision-makers, when forming intentions. But given the evidence of prior research with the theory of reasoned action, attitude towards the behavior should have more influence on intention than subjective norms for both high and low moral reasoners.

H2a: For high moral reasoners, attitude towards the behavior has greater effect than subjective norms on intention to report fraudulently.

H2b: For low moral reasoners, attitude towards the behavior has greater effect than subjective norms on intention to report fraudulently

H2c: Subjective norms have greater effect on intention to report fraudulently for low moral reasoners than for high moral reasoners.

H2d: Attitude towards the behavior has greater effect on intention to report fraudulently for high moral reasoners than for low moral reasoners.

Self-monitoring

Self-monitoring is the manner in which one manages other people's perceptions of oneself (Snyder, 1974). High and low self-monitors are theorized to differ in the extent to which they

attempt to manage their public presentations. High self-monitors are more likely to assess a social situation and adjust their presentations of self to fit their perceptions of the demands of that situation. Low self-monitors are theorized to be less concerned with the perceptions of others and are more resistant to changing their public displays of self. High self-monitors, because they cheat in self-presentation, are more likely to intend to cheat in a task (Covey et al., 1988). In the context of fraudulent financial statement reporting, managers who are high self-monitors are more likely to be concerned with how investors and creditors view their performance and more likely than managers who are low self-monitors to intend to report fraudulently on the financial statements. Low self-monitors do not change their course of action just to impress other people. Consideration of these factors leads to the following hypotheses:

H3: Subjects who are high self-monitors express higher intention to report fraudulently than subjects who are low self-monitors.

Because high self-monitors are more concerned with the opinions of others than with their own assessments of a situation they place more emphasis on the attitudes of others (subjective norms) when forming intentions, in this case the intention to report fraudulently in the financial statements. In comparison to high self-monitors, low self-monitors put more emphasis on their own opinions than the attitude of others. But given the evidence of prior research with the theory of reasoned action, attitude towards the behavior should have more influence on intention than subjective norms for both high and low self-monitors.

H4a: For high self-monitors, attitude towards the behavior has greater effect than subjective norms on intention to report fraudulently.

H4b: For low self-monitors, attitude towards the behavior has greater effect than subjective norms on intention to report fraudulently.

H4c: Subjective norms have greater effect on intention to report fraudulently for high self-monitors than for low self-monitors.

H4d: Attitude towards the behavior has greater effect on intention to report fraudulently for low self-monitors than for high self-monitors.

Incentives for cheating also moderate the relationship between self-monitoring and cheating. Covey et al. (1988) find that high self-monitors cheat more, all other things held equal. They also find that because high self-monitors are more concerned with how others view them, they are less influenced by incentives: the public reward of admiration from others is more important than other personal tangible rewards. But low self-monitors, because they are less concerned with how others view them, are more likely to cheat in the presence of substantial incentives. Incentives are rewards for performing well. In the situation of fraudulent financial statement reporting, compensation structure³ that is more company performance-related represents the high incentive condition. Low self-monitors are more likely to report fraudulently on financial statements when the reward structure is high.

H5a: For low self-monitors, compensation structure that is more performance-related leads to higher intention to report fraudulently.

H5b: For high self-monitors, compensation structure that is more performance-related has no effect on intention to report fraudulently.

3. Methodology and measurement

The survey questionnaire⁴ measured the variables for the reasoned action model and included the instruments for need for achievement and the social desirability scale, together with other data not included in the study reported here. The questionnaire also contained a demographic section that included measures for company size and the respondent's compensation structure.

The reasoned action model

Five different fraud scenarios [Table I] were developed based on prior ethics research, cases used in ethics and financial statement analysis textbooks, and actual fraud cases. The scenarios were then presented to a small group of accountants and managers who commented on the realism of the scenarios and also supplied suggested referents and outcomes for each scenario. The comments provided by this group

were used to make some adjustments to the scenarios and to write the statements for each scenario used in the survey instrument. Likert scales and semantic differential scales followed these statements and provided the measures for the variables of the reasoned action model. Each subject received only one of the five different fraud scenarios and all the questions concerning that scenario. The five different fraud scenarios were used at random, with the purpose of making the results generalizable to a broad range

TABLE I
Scenarios

Scenario 1:

It appears the revenues of the company will fall below analyst predictions and company projections. Release of these numbers is likely to cause a significant drop in the company's stock price.

It occurs to you that you can moderate the effect of this large dip in revenues by recording in December a small amount of revenue on account that the company will earn in January. The contracts for these jobs have already been signed and the work will be completed in January.

Scenario 2:

Changes in market demand have made it difficult for the company to attract new customers and as a result the current ratio has changed unfavorably. As things stand the company has broken some debt covenants because of the unfavorable change in the current ratio.

Other managers have suggested maintaining a favorable current ratio by reclassifying some long-term marketable securities as short-term assets even though the company has no intention of converting the assets into cash within the next year.

Scenario 3:

The revenues for the company have fallen due to the shrinkage in global demand of goods and services caused by the Asian economic crisis. Certain key financial ratios are very close to debt covenant thresholds and the release of these figures would damage the company's position. It appears that the decline in revenues is temporary: the company is recouping losses by expanding its European markets. The projections for Europe look promising.

It occurs to you that prebilling shipments that will occur in the first three weeks of the next quarter can offset this large dip in revenues.

Scenario 4:

Profits have been moderate this year and the net income figure is just below the point where you and other managers can receive a significant bonus.

Other managers have suggested including ten percent of the consigned goods in ending inventory figures. This will substantially increase net income and result in a considerable bonus for you and the other officers.

Scenario 5:

The legal department is concerned that several outstanding lawsuits are pending and some may need to be settled within the next year. The company's legal staff has determined that a number of legal issues may lead to material losses for the company. Disclosing this information will increase perceived firm risk and may cause a substantial negative stock market reaction.

Other managers have suggested not reporting most or all of this contingent liability to moderate or prevent the negative market reaction.

of fraudulent financial statement reporting and to avoid narrowing the conclusions of the study to one particular type of fraudulent reporting.

All of the Likert scales and semantic differential scales were scored -3 to $+3$. All of the variables for the reasoned action model were phrased and scaled in the manner illustrated by Ajzen and Fishbein (1980). Intention (I) was measured with one Likert type question (I1) and a question that asked the respondent to express as a percentage the likelihood that they would perform the act (I2). Attitude towards the behavior (A) was measured with four semantic differential scales (A1, A2, A3, A4). Positive belief evaluations (P) were measured by two variables (P1, P2), each a product of the subject's belief that a particular positive outcome would occur (P1.1, P2.1) and the evaluation of the outcome as either good or bad (P1.2, P2.2). Negative belief evaluations (N) were measured by two variables (N1, N2), each a product of the subject's belief that a particular negative outcome (e.g. increased risk of a qualified audit report) would occur (N1.1, N2.1) and the evaluation of the outcome as either good or bad (N1.2, N2.2). The measure for subjective norms (SN) was a product of two scales: a measure of how the subject believed most people would react to the behavior (SN1) and the subject's willingness to conform to their expectations (SN2). Referent group (G) was measured by five variables (CG1, CG2, NG1, NG2, NG3); each referent measure was a product of two scales: a measure of how the subject believed that referent would react to the behavior (CG1.1, CG2.1, NG1.1, NG2.1, NG3.1) and the subject's willingness to conform to that referent's expectations (CG1.2, CG2.2, NG1.2, NG2.2, NG3.2).

A complete questionnaire, containing one scenario, was then administered to a pretest group of CFOs and managers. The remaining four scenarios then followed this. This group was asked to record the time it took to complete the questionnaire and to comment on the questionnaire and the scenarios. The final version of the questionnaire was modified in light of the comments provided by this group.

Need for achievement

Need for achievement was measured using a scale developed by Atkinson and O'Connor (1963). The scale consists of ten questions; each question has two responses from which the subject can choose. Each question is scored as one or zero depending on the response chosen by the subject; these values are then summed. Normally a subject who scores six or above is considered to be high in need for achievement, whereas a score of five or lower is considered to be low in need for achievement.

Compensation

Two questions were used to measure compensation structure. The questions were:

- The percentage of my total personal assets represented by company assets is: _____ %.
- The amount of my compensation that is based on the company's reported performance is: _____ %.

These two questions were taken from the red flag literature for fraud.

Company size

Company size was measured from data collected from the demographics section of the survey instrument and from data collected externally. The subjects were asked to supply the average sales or revenue for their company. The additional size indices used to approximate the size of the company were total current assets, total current liabilities, total assets, total liabilities, and net sales. The data for these indices was taken from Compact Disclosure. All six of these measures were then used as indicators of company size.

Moral reasoning

The defining issues test or DIT (Rest, 1979) was used to measure level of moral reasoning. A

short, three-scenario version was used instead of the six-scenario version. Three of the original six scenarios were used in this survey; the scenarios used were chosen to be the ones that most reflected issues in today's society. Scenarios that were left out dealt with issues that were not current (e.g. the Vietnam War) or no longer as socially unlikely as they were 20 years ago (e.g. male students with long hair). Rest has investigated the reliability of using any three scenarios instead of the full six-scenario version. Using the short version lowers the reliability of the instrument by 4 to 23 correlation points, but that was traded off for increased response rate in this study. We follow Rest (1979) in dividing the population at the median P-score for high and low moral reasoners.

Self-monitoring scale

Snyder's (1974) self-monitoring scale was used to measure self-monitoring. The scale consists of 25 true and false questions. Snyder validated the scale in his 1974 paper and found it to be internally consistent, temporally stable, and uncorrelated with self-report measures of related concepts.

Sample selection

Compact Disclosure was used for the sample data and selection. This study used the most recent data available, the Compact Disclosure data as of July 1998, and included only domestic firms. A random sample of 2000 was drawn from the population of all domestic publicly traded firms. Compact Disclosure also provided the mailing address of the firm, and in most instances supplied the names of the executives of the firm. In some instances the firm did not identify a chief financial officer among the officers; in such a circumstance the survey was addressed to the treasurer or the chief executive officer.

The survey was administered by mail. The mailing included a cover letter, the survey instrument and a self-addressed stamped return envelope. A reminder postcard was mailed two

weeks after the survey and followed up the initial mailing.

4. Reliability and validity

Reliability and validity of the achievement risk preference scale (Atkinson and O'Connor, 1963), Snyder's self-monitoring scale (Snyder, 1974), and the defining issues test (Rest, 1979) have all been extensively tested and we can be fairly confident of their applicability across time, place and settings. The fraudulent reporting scenarios were tested with a small group of CFOs and managers who individually read the scenarios and commented subjectively on their realism and the severity of the fraud described in each scenario. All the accountants and managers participating in the pre-testing agreed that each of the scenarios used in this study had high realism.

Certain tradeoffs in data collection were made in order to conform to the data collection methods of previous studies. The use of Likert scales produces data that is categorical and not continuous in nature. Structural equation modeling is best suited for use with continuous data and may cause biased or unreliable estimates when categorical data is used. The present consensus on Likert scales is that they represent a coarse discretization of an underlying continuous distribution and can be treated as continuous if there are seven or more categories within each scale (Bollen, 1989). The data in this study utilize seven point Likert scales and most of these are multiplied together to create 13 point scales. They are accordingly analyzed as continuous in the following section.

5. Results and analysis

5.1. Demographics

139 of the 2000 subjects responded to the survey (7 percent response rate). Of these 139 responses, 17 are incomplete. The data is analyzed with the program EQS 5.7b (Bentler, 1998). The 114 early responses were returned before mailing the reminder postcards, and the 25 late responses

were returned after the mailing of the postcards. The demographic variables consist of personal questions such as education level, age, sex, and managerial experience of the respondent as well as questions relating to the firm. The Wilcoxon-Mann-Whitney test was used to analyze the variables by time because the two subsets are very unbalanced in size. Analysis of variance and the *F*-test were used to analyze the differences by scenario. The demographic variables have only one significant difference by either time or scenario: the response to the question measuring years of managerial experience is significant by scenario. However, post hoc Tukey comparisons of all pairs reveals no single scenario accounts for the difference.

5.2. Nonresponse bias

Nonresponse bias creates an uncertainty for this study, as for most survey research. The response rate of 7% for this study was lower than the 20% average for mail surveys in general. To investigate this, the nonrespondents and respondents were compared using two items of nonfinancial data: number of employees and a dummy variable for Big 5 auditor; and a set of financial data items that measure company size: total assets, total liabilities, total current assets, total current liabilities, net income and net sales. The means for the nonresponse group were compared to those of the response group, and significance was tested with the *F*-test, Wilcoxon-Mann-Whitney test and Kolmogorov-Smirnov test. The means for all variables were not significantly different except for the single case of net income which was significantly different at $p < 0.038$ level for the Kolmogorov-Smirnov test alone. This indicates that the response group and non-response group are not significantly different, at least for the firm-level variables that could be measured. These variables do not capture any individual characteristics of the respondents or nonrespondents; individual variables could provide a more meaningful comparison between the two groups. Unfortunately comparative data for individual characteristics were not available for the nonresponse group; individual data for

the response group were gathered via the survey instrument.

Given the data available for comparison between the response and nonresponse group, there is no evidence of nonresponse bias. The low response rate was traded off against the opportunity to collect data from high-level managers; consequently, the data that was collected is most relevant to the issue under study.

5.3. Combining time and scenario

All nondemographic variables were analyzed for significant differences by time (early versus late response) and by scenario. The Wilcoxon-Mann-Whitney test was used to analyze the variables by time because the two subsets are very unbalanced in size. Analysis of variance and the *F*-test were used to analyze the differences by scenario. For the analysis by time seven⁵ out of 45 variables are significant. Given that only the products are used in the data analysis and only one product out of 25 variables used in data analysis is significant at the $p < 0.05$ level, the early and late responses are combined and treated as one sample.

The results by scenario indicate that 13 variables⁶ are significant at the $p < 0.05$ level. Results of post hoc Tukey comparisons of all pairs of scenarios for each significant variable reveals that no particular scenario drives the differences; all scenarios effect one or more variables. Given the fairly large number of measured variables that are not significant and the fact that no single scenario is driving the results for the variables that are significant, the data is combined and treated as one sample. The present study is concerned only with general model fit; therefore all scenarios are combined for analysis purposes.

5.4. Descriptive statistics

The measured variables for the reasoned action model were generated by multiplying each belief by its associated evaluation (to create belief evaluation products) and each referent group by its associated motivation to comply (to create the group norms products). All structural equation

models were analyzed using EQS 5.7b (Bentler, 1998).

The mean score for the DIT P-score was 38.94 (standard deviation 16.06) and the mean score for the self-monitoring scale was 13.1583 (standard deviation of 2.1578). For the Marlowe-Crowne social desirability scale the mean score was 3.2878 (standard deviation 1.4854); the mean score on the need for achievement scale was 5.9065 (standard deviation of 1.7358). The mean scores for the two measures for compensation structure were 21.8% (standard deviation 27.97) and 17.51% (standard deviation 19.3).

Size was measured with six variables. One of these measures was included in the survey instrument. The question asked the respondents what their company's average yearly sales or revenues from operations were. The other five measures were total current assets, total assets, total current liabilities, total liabilities and net sales. All of these measures were taken from the July 1998 Compact Disclosure database. The untransformed variables exhibited nonnormal distributions. As is common practice in the accounting literature, the size variables were scaled by taking logs. After this transformation the distributions more closely approximated normal distributions.

The remaining variables were checked for skewness, both univariate and multivariate kurtosis, and outliers. The following variables exhibit univariate kurtosis greater than 2: I1 (12.353), I2 (5.316), A1 (9.163), and A2 (3.177). The distributions for these variables are skewed to the left and are centered on zero or a negative number. The data is not transformed for two, unrelated reasons; first of all, transforming the

data makes it much more difficult to interpret the results of the structural equation analysis. Secondly, no satisfactory transformation could be obtained for data centered on zero or on a negative number, as is the case with these variables. Consequently, the models are analyzed with robust fit statistics that adjust for nonnormal data.

5.5. Moral reasoning

Rest recommends grouping subjects based on P-scores and suggests dividing at the population median. Accordingly, the data set was split into two groups by dividing at the median DIT P-score of 40. A test of invariant factorial structure was executed with EQS⁷ using the split data. The final model analyzed for each group is presented in Figure 2.

The model contains the full set of factors and variables investigated in this study. Originally unconstrained paths were constrained equal for both high and low groups and simultaneously estimated. Fit statistics and parameter estimates are presented in Table II.

EQS investigates invariance of factorial structure using a Lagrange Multiplier test of the null hypothesis that the model paths are equal across groups. The model is evaluated with the paths of interest constrained to have the same value across the groups, and paths with constraints having a univariate increment probability ≤ 0.05 in the Lagrange Multiplier test are shown to be significantly different between the two groups of data. This study only hypothesizes about the

TABLE II
Moral reasoning and invariance of factorial structure: Constrained model

Fit indices	Value	Parameter	Estimate	Standard error	Standardized estimate
Comparative Fit Index (CFI)	0.858	A → I (LO)***	10.854	1.591	0.912
Chi-square	843.043	A → I (HI)***	10.854	1.591	0.735
Model degrees of freedom	557	SN → I (LO)**	-0.506	0.212	-0.165
		SN → I (HI)**	-0.506	0.212	-0.139

Figures in bold are significant: *** at $p < 0.001$ level, ** at $p < 0.05$ level, * at $p < 0.1$ level.

structural paths; therefore only structural paths are considered in the analysis of the Lagrange Multiplier test results. The Lagrange Multiplier test indicates that the structural path for attitude towards the behavior to intention, $A \rightarrow I$, is significantly different for the two groups, although the structural path $SN \rightarrow I$ is not.

The constraints for both these paths were released and the model was re-estimated. Fit statistics and parameter estimates for the unconstrained model are presented in Table III. There are two sets of coefficients for the structural paths $A \rightarrow I$ and $SN \rightarrow I$, one for each group (high and low moral reasoners). The improvement in model fit achieved by releasing the two constraints can be tested for significance by taking the difference between the chi-square statistics for the two models. The difference in chi-square between these models is 11.968 with two degrees of freedom and is significant at $p < 0.005$.

Hypotheses H2a and H2b state that for each group, high and low, the parameter estimate for attitude towards the act to intention, $A \rightarrow I$, is greater than the parameter estimate of subjective norms to intention, $SN \rightarrow I$. To test these hypotheses, the difference between the coefficients for A and SN was taken for each group and divided by the respective standard error for SN . For the high group, this statistic equals 43.12, $p < 0.000$; and for the low group this statistic equals 32, $p < 0.000$. Thus both differences are significant and Hypotheses H2a and H2b are supported by the data.

Hypothesis 2c stated that subjective norms have more influence on intention for low moral reasoners than for high moral reasoners. To test

this hypothesis the parameter estimate for the structural path from subjective norms to intention, $SN \rightarrow I$, was compared for high and low moral reasoners, Table III. If the hypothesis is supported the parameter estimate for low moral reasoners should be higher than the parameter estimate for high moral reasoners. However, the results in Table III show that the parameter estimate for low moral reasoners is lower than the parameter estimate for high moral reasoners, although the difference is not significant. Therefore, H2c is not supported.

Hypothesis H2d stated that attitude towards the behavior has more influence on intention for high moral reasoners than for low moral reasoners. To test this hypothesis the parameter estimate for the structural path from attitude towards the behavior to intention, $A \rightarrow I$, was compared for high and low moral reasoners. If the hypothesis is supported the parameter estimate for high moral reasoners should be greater than the parameter estimate for low moral reasoners. The results in Table III demonstrate that the parameter estimate for high moral reasoners is greater than the parameter estimate for low moral reasoners. The Lagrange Multiplier test described above shows that this difference is significant at the $p < 0.05$ level, and hypothesis H2d is supported.

5.6. Self-monitoring

The data set was split into two groups by dividing at the median self-monitoring scale score of 13. The high self-monitor group has scores greater

TABLE III
Moral reasoning and invariance of factorial structure: Unconstrained model

Fit indices	Value	Parameter	Estimate	Standard error	Standardized estimate
Comparative Fit Index (CFI)	0.863	A \rightarrow I (LO)***	9.052	1.428	0.887
Chi-square	831.075	A \rightarrow I (HI)***	16.916	2.800	0.916
Model degrees of freedom	555	SN \rightarrow I (LO)	-0.413	0.270	-0.118
		SN \rightarrow I (HI)	-0.616	0.378	-0.147

Figures in bold are significant: *** at $p < 0.001$ level, ** at $p < 0.05$ level, * at $p < 0.1$ level.

than 13. The low self-monitoring group has scores less than or equal to 13. A test of invariant factorial structure was executed with EQS using the split data. A different model was fit to each half of the data. The model fit for the high self-monitor data has one factor, PN, combining both positive and negative evaluations. No other forms of the model converged successfully; the models produced various condition codes for linear dependencies and variances constrained to zero. A factor analysis was performed within SPSS with the variables for P and N; the principal axis method was used to extract factors with eigenvalues greater than one. All four variables formed one common factor; thus the two factors were combined in EQS. The factors for compensation structure or size had to be dropped from these models since including any combination of these factors results in unreliable maximum likelihood estimates due to various linear dependencies and variances constrained to zero by the program in order to arrive at a solution.

Originally unconstrained paths that were

identical in both models were constrained equal for both high and low groups and simultaneously estimated. Fit statistics and parameter estimates are presented in Table IV.

The Lagrange Multiplier test indicates that the structural path of subjective norms to intention, SN → I, is significantly different across groups.

This study expected the structural paths from A → I and from SN → I to be significantly different between the two groups. Both of these constraints were released and the model was re-estimated. The full set of fit statistics and parameter estimates for the unconstrained model is presented in Table V. Coefficients for the structural paths A → I and SN → I are reported separately for the high and low groups. The chi-square difference between the two models is 10.762 with 2 degrees of freedom; this difference is significant at $p < 0.005$.

Hypotheses H4a and H4b state that for each group, high and low, the parameter estimate for attitude towards the act to intention, A → I, is greater than the parameter estimate of subjective

TABLE IV
Self-monitoring and invariance of factorial structure: Constrained model

Fit indices	Value	Parameter	Estimate	Standard error	Standardized estimate
Comparative Fit Index (CFI)	0.861	A → I (LO)***	11.062	1.338	0.819
Chi-square	323.703	A → I (HI)***	11.062	1.338	0.992
Model degrees of freedom	244	SN → I (LO)	-0.151	0.186	-0.038
		SN → I (HI)	-0.151	0.186	-0.060

Figures in bold are significant: *** at $p < 0.001$ level, ** at $p < 0.05$ level, * at $p < 0.1$ level.

TABLE V
Self-monitoring and invariance of factorial structure: Unconstrained model

Fit indices	Value	Parameter	Estimate	Standard error	Standardized estimate
Comparative Fit Index (CFI)	0.874	A → I (LO)***	12.444	2.046	0.836
Chi-square	314.245	A → I (HI)***	11.110	1.358	0.990
Model degrees of freedom	242	SN → I (LO)***	-1.053	0.358	-0.253
		SN → I (HI)	0.240	0.234	0.094

Figures in bold are significant: *** at $p < 0.001$ level, ** at $p < 0.05$ level, * at $p < 0.1$ level.

norms to intention, $SN \rightarrow I$. To test these hypotheses the difference between the coefficients for A and SN was taken for each group and divided by the respective standard error for SN. For the high group, this statistic equals 48.50, $p < 0.000$; and for the low group this statistic equals 31.81, $p < 0.000$. Thus both differences are significant and Hypotheses H4a and H4b are supported by the data.

Hypothesis H4c stated that subjective norms have more influence on intention for high self-monitors than for low self-monitors. To test this hypothesis the parameter estimate for the structural path from subjective norms to intention, $SN \rightarrow I$, was compared for high and low self-monitors (Table IV). If the hypothesis is supported the parameter estimates for high self-monitors should be higher than the parameter estimate for low self-monitors. However, the results in Table VI indicate that the parameter estimate for high self-monitors is lower than the parameter estimate for low self-monitors. Review of the Lagrange Multiplier test results for the fully constrained model indicates that this structural path was significant. Thus the structural paths $SN \rightarrow I$ for low and high self-monitors are significantly different at the $p < 0.05$ level, but not in the expected direction, and the hypothesis is not supported.

Hypothesis H4d stated that the attitude towards the behavior has more influence on intention for low self-monitors than for high self-monitors. Comparing the structural path estimates $A \rightarrow I$ for low and high self-monitors from Table V reveals that the structural path estimate for low self-monitors is greater than the structural path estimate for high self-monitors. But this path was not significant in the Lagrange

Multiplier test output for the constrained model; therefore this difference is not significant and the hypothesis is not supported. Recall however that the tests of the hypotheses are based on a model that did not include size or the factors for compensation structure. The results might change if these variables could be included in the model.

5.7. Invariance of latent means

Invariant latent mean structure analysis with EQS was attempted to test hypotheses H1 and H3. This method is very sensitive to start values. It proved impossible to obtain reliable estimates for self-monitors because the program converges with various condition codes for linear dependencies and variances constrained at the lower bound. Alternative methods of analysis are presented in Section 5.8 to address hypotheses H3.

The invariant latent mean structure analysis for the moral reasoning split data converged successfully. Hypothesis H1 was concerned with whether the unobserved latent mean for the intention factor differed between high and low moral reasoners. The results for this analysis are presented in Table VI.

Table VI presents the means and fit indices for the latent factor I. Hypothesis H1 is concerned only with intention; therefore if the mean for intention I, is significant then it is unequal between groups. The results in Table VI indicate that the estimate of the latent mean for intention, I, is not significant and therefore, can be regarded as invariant between groups. Hypothesis H1 is not supported by this data.

TABLE VI
Moral reasoning: Latent means analysis

Fit indices	Value	Factor	Estimated mean
Comparative Fit Index (CFI)	0.814	I	0.618
Chi-square	938.219		
Model degrees of freedom	565		

Figures in bold are significant: *** at $p < 0.001$ level, ** at $p < 0.05$ level, * at $p < 0.1$ level.

5.8. Supplementary analysis

This section analyzes hypotheses that could not be successfully tested with structural equation modeling, specifically hypotheses H3, H5a and H5b.

Using common factor analysis in SPSS a single factor for intention was formed from the variables I1 and I2. The principal axis method was used to extract factors with eigenvalues greater than one. Factors were also formed for attitude from the variables A1, A2, A3, and A4, and for size from the six variables used to measure size. Subjective norm was measured in the usual way by multiplying SN1 by SN2. A dummy variable was coded for self-monitoring by dividing the data at the median and coding 0 as high and 1 as low. The following regression was estimated:

$$\begin{aligned} \text{Intention} = & a_1 + b_1 \text{Attitude} + \\ & b_2 \text{Subjective norms} + b_3 \text{C1} + b_4 \text{C2} + \\ & b_5 \text{Size} + b_6 \text{SDS} + b_7 \text{SMdummy} + \\ & b_8 \text{SMdummy} * \text{A} + b_9 \text{SMdummy} * \text{SN} + \\ & b_{10} \text{SMdummy} * \text{C1} + b_{11} \text{SMdummy} * \text{C2} \\ & + b_{12} \text{SMdummy} * \text{Size} + \\ & b_{13} \text{SMdummy} * \text{SDS} + e. \end{aligned}$$

The regression has an F statistic = 12.251 and is significant at the $p < 0.000$ level. The R -square is 0.596 and the adjusted R -square is 0.547. The coefficients on C1 and C2 estimate the effect of compensation structure for high self-monitors and address H5b. Neither coefficient is significant, supporting H5b, which states that high self-monitors are not influenced by compensation structure. The coefficients for C1xSMdummy and C2xSMdummy measure the differential effect of Compensation Structure for high and low self-monitors. C2xSMdummy is positive and significant, supporting H5a. This hypothesis stated that low self-monitors have higher intentions to report fraudulently on the financial statements in the presence of high performance-related compensation structure. However, C1xSMdummy is not significant; overall, therefore, results for H5a are inconclusive.

To test hypothesis H3 an analysis of variance was initially run with the factor for intention and with the SMdummy. The ANOVA result for

self-monitoring estimates a mean of $-9.4\text{E}-02$ for high self-monitors and a mean of $7.67\text{E}-02$ for low self-monitors. Thus the mean for high self-monitors is lower than the mean for low self-monitors, although the difference is not significant. The ANOVA used the split self-monitoring data to test the difference in the means for the two groups; the discretization of the self-monitoring data into two halves causes some loss in measurement precision.

A regression was then executed with the original, unsplit self-monitoring data and the intention factor. The regression result indicates the coefficient for self-monitoring is negative; hence, low self-monitors are more likely to have higher intentions to commit fraud.⁸ This is contrary to the stated hypothesis. The reported significance for the regression is $p < 0.101$, but this reported significance results from a two-tailed test. The stated hypothesis H3 requires a one-tailed test. Thus the one-tailed significance for this regression is $p < 0.051$, and the coefficient for self-monitors is very close to significant. Hypothesis H3 stated high self-monitors would express higher intentions of fraudulent financial statement reporting than low self-monitors.

The regression described above was subsequently rerun as a two-block regression (the previous regression looked only at the effect of self-monitoring on intention). This expanded regression looks at the total effect of self-monitoring after taking into account the effect of all other variables on intention. The first block regressed the variables attitude, subjective norms, C1, C2, size, and SDS on intention. The second block added the variables SMdummy, SMdummy*A, SMdummy*SN, SMdummy*C1, SMdummy*C2, SMdummy*Size and SMdummy*SDS as independent variables to the regression. Block 1 had an R -square of 0.457 and an adjusted R -square of 0.429; addition of the second block of variables resulted in an R -square of 0.596 and an adjusted R -square of 0.547. The change in R -square is significant, $F = 5.304$, $p < 0.000$. Self-monitoring significantly improves model fit and has a significant effect on intention. Also the coefficient for SMdummy is negative and significant. Thus the direction of H3 is not as expected. Overall

evidence regarding significance is therefore mixed. Hypothesis H3 is apparently not supported by the data.

6. Conclusions

Table VII summarizes the results of the hypothesis testing.⁹

The results for moral reasoners are as expected.

High self-monitors are more influenced by attitude towards the behavior or internal personal principles, instead of societal or subjective norms. However, other results for self-monitors are contrary to expectations and prior research. Hypothesis H5a, regarding the effect of compensation structure on low moral reasoners, is not supported. This could be because there is no effect, which is contradictory to prior research, or this could be a consequence of unsuccessful measures for compensation structure. Results for Hypothesis 4c are also counter-intuitive. The results indicate that subjective norms have more influence for low self-monitors. This can be

interpreted as meaning low self-monitors are more influenced by what others think than high self-monitors in the environment of forming intentions to report fraudulently on financial statements. This is contrary to the theory for self-monitoring. More research needs to be carried out in this setting to see if these results can be replicated under more controlled circumstances or with a different population.

Limitations

One disadvantage of survey research is the potential for nonresponse bias. Whether or not non-respondents are in some way significantly different from respondents cannot be answered with any certainty.

The use of scenarios also imposes certain limitations on the results. Scenarios can only examine hypothetical situations, but this is the recommended method for researching ethical dilemmas because it reduces socially desirable responding (Brief et al., 1996). Future research

TABLE VII
Summary of hypotheses results

Hypothesis	Result
H1: Low moral reasoners will express higher intentions of fraudulent reporting	Not significant.
H2a: For high moral reasoners $A \rightarrow I > SN \rightarrow I$	Significant.
H2b: For low moral reasoners $A \rightarrow I > SN \rightarrow I$	Significant.
H2c: $SN \rightarrow I$ is greater for low moral reasoners than high moral reasoners	Not significant.
H2d: $A \rightarrow I$ is greater for high moral reasoners than low moral reasoners	Expected sign, significant.
H3: High self-monitors will express higher intentions of fraudulent reporting	Mixed significance, not supported.
H4a: For high self-monitors $A \rightarrow I > SN \rightarrow I$	Significant.
H4b: For low self-monitors $A \rightarrow I > SN \rightarrow I$	Significant.
H4c: $SN \rightarrow I$ is greater for high self-monitors than low self-monitors	Rejected, significantly lower.
H4d: $A \rightarrow I$ is greater for low self-monitors than high self-monitors	Expected sign, not significant.
H5a: Low self-monitors express higher intentions when compensation is high	Inconclusive, not supported.
H5b: Compensation does not influence high self-monitors	Accepted, not significant.

that directly observes CFO behavior would offer more definitive results.

Another limitation of the present study is small sample size (by structural equation modeling standards). The possible reasons for the low response rate include the length and sensitive nature of the questionnaire. Nonnormality of the data resulting from the use of categorical variables is another potential limitation.

Future research

Future research should include investigation of the counter-intuitive results for self-monitoring by running a similar study in a more controlled environment such as a laboratory experiment setting.

Data gathered in the demographics portion of this study can be used to further enhance the present model and increase our understanding of circumstances in which financial statement fraud occurs. Some of the firm level data that is yet to be incorporated into future versions of the model are Big 5 versus non-Big 5 auditor, type of business, and whether the financial reporting decision is made within a group or by the individual. Some of the individual level data that has yet to be incorporated are years of managerial experience, education level, professional certification and years worked for the present company.

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Notes

¹ Recently Hu and Bentler (1999) have proposed a stricter standard, but this has not yet been widely adopted in practice.

² All hypotheses are stated in alternate format.

³ Gillett and Uddin (2002) model compensation structure as a construct that directly affects intentions. It is hypothesized that when the compensation structure is highly contingent upon company performance, managers are more likely to report fraudulently in the financial statements. Thus, an individual might have low subjective norms and attitude towards the behavior but might still report fraudulently on the financial statements when the incentive (performance-related compensation structure) is high. The high performance-related compensation structure might cause a person to disregard evaluations of the outcome and subjective norms in anticipation of the reward derived from contingent compensation structure.

⁴ The survey instrument is available upon request from the corresponding author.

⁵ The variables SN1, SN2, and their product, SN1xSN2. The variables CG1.1, CG2.1, NG1.2 and NG2.2 are also significant but none of their products are significant.

⁶ P1.1, P1.2, P1, P2.1, P2.2, P2, N1.1, N1, N2.1, N2.2, N2, NG2.2, NG2

⁷ Correlations between certain error terms were added to the model based on investigating the results of the Lagrange Multiplier test.

⁸ This is consistent with the ANOVA results because low self-monitors were coded as 1 and high self-monitors were coded as 0 for the self-monitoring split.

⁹ Several supplementary analyses were run to investigate the possibility that results might be due to socially desirable reporting. The short, six-question version (Fisher and Fick, 1993) of the social desirability scale (Crowne and Marlowe, 1964) was used to measure socially desirable reporting. The structural equation model was extended to include a factor for social desirability, which was allowed to load on each of the measured variables. Alternatively, the factor for social desirability was introduced into the structural model as a factor influencing Intention. No evidence was found for socially desirable reporting in any of the supplementary analyses.

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