



# Attitude, Machiavellianism and the rationalization of misreporting

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## ABSTRACT

Audit standards around the world describe three factors, known together as the fraud triangle, that purportedly predict the likelihood of fraudulent financial reporting (IAASB, 2009; PCAOB, 2005). The first two factors, opportunity and incentive/pressure, are largely accepted as being associated with fraud (Erickson, Hanlon, & Maydew, 2004; Graham, Harvey, & Rajgopal, 2005; Wells, 2001), whereas the third factor, attitude/rationalization, remains a relative mystery (Hogan, Rezaee, Riley, & Velury, 2008; Wells, 2004). I conducted an experiment in which participants were provided the opportunity and motivation to misreport, in order to explore attitude and rationalization in greater detail. As expected, I found that participants whose attitude favors misreporting and individuals who are higher in Machiavellianism are both more likely to misreport; and participants who misreport experience negative emotions (affect). Of concern, however, is that higher Machiavellians who misreport feel significantly less guilt than others who misreport. When I changed the experimental setting and asked participants to think about common rationalizations they may use, in an attempt to reduce rationalizing before they made their reporting decision, significantly fewer participants misreported; while those who still misreported rationalized to an even greater extent. Implications for future research and fraud detection and prevention are discussed.

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## Introduction

Audit standards worldwide describe three factors that purportedly predict the likelihood of fraud within an organization (IAASB, 2009; PCAOB, 2005). These three factors, together known as the fraud triangle, are: (1) opportunity, (2) incentive/pressure, or motivation, and (3) attitude/rationalization. The first two are generally accepted as predictors of fraud (Erickson et al., 2004; Graham et al., 2005; Hogan et al., 2008; Wells, 2001) and audit standards provide detailed guidance on the presence of these two factors. However, the third side of the fraud triangle – attitude/rationalization – has received little attention from researchers (Hogan et al., 2008), and audit standards provide little direct guidance. The American Institute of Certified Public Accountants suggests these factors may not be observable (AICPA, 2002, Sec. 316.35). In this paper, I examine attitudes and rationalizations of individuals in

an experimental setting that provides the opportunity and motivation to misreport. This study addresses a question put forth by the founder of the Association of Certified Fraud Examiners:

“...when presented with seemingly identical opportunities and motives, why does one person or organization turn to fraud and another does not? No one really knows.”

(Wells, 2004, p. 3).

I focus solely on one type of fraud: fraudulent financial reporting, or misreporting. Fraudulent financial reporting carries the most severe consequences of all fraud types,<sup>1</sup> and calls are being made for a greater understanding of how to reduce it (Carcello & Hermanson, 2008).

<sup>1</sup> Fraudulent financial reporting carries a median loss of \$4.1 million (USD equivalent), almost 30 times greater than the median loss for schemes involving asset misappropriation and fifteen times greater than the median loss for cases involving corruption (Association of Certified Fraud Examiners, 2010).

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Even though attitude and rationalization constitute one side of the fraud triangle, I argue they are different constructs, especially in their temporal relation to misreporting. Individuals walk into a reporting situation with some kind of predisposition toward misreporting, whether it is a true “attitude” which is changeable (Harmon-Jones & Mills, 1999; Sherman & Fazio, 1983) or a “character” trait which is stable (Christie & Geis, 1970; Sherman & Fazio, 1983).<sup>2</sup> In contrast, misreporting, or the intent to misreport, triggers rationalization.

Individuals use rationalization to reduce the negative emotions (negative affect) that accompany “bad” behavior. Placed in a reporting context, individuals who consider misreporting will also anticipate feeling badly because misreporting is either against their beliefs (Festinger, 1957) or against society’s norms (Bandura, 1991, 1999). According to Frank (1988), emotions serve to keep us honest. However, many individuals are able to think of a rationalization in order to reduce the negative feelings that accompany misreporting behavior (Murphy & Dacin, 2011; Sykes & Matza, 1957).

Given the discussion above, we expect individuals who have a predisposition toward misreporting to be more likely to misreport, and we expect individuals who misreport to experience negative affect. Using an experimental setting, I first validated these expectations before exploring rationalization and two predispositions in greater depth. The two predispositions of interest are: (1) the attitude toward reporting the results of one’s own performance to others, and (2) Machiavellianism, a character trait. My two research questions are: (1) How easy is it to rationalize? and (2) Are predispositions associated with rationalization and negative affect?

As expected, I found that participants who have a predisposition toward misreporting are more likely to misreport, and they also misreport by greater amounts. I found that most misreporting participants use rationalization significantly more than other reasons for misreporting, such as “because I could” or “because I wanted more money”. I found no association between predisposition and rationalization.

As a further test of the power of rationalization, I created a two-level manipulation in which participants’ ability to use certain rationalizations was systematically reduced. In the first manipulation level labeled *delicate*, any misreporting by a participant resulted in a financial loss to another participant, eliminating the “I’m not hurting anyone” rationalization. In the second manipulation level labeled *concentrated*, the case materials also asked participants to think about other commonly used rationalizations, making their use of them more difficult. The concentrated treatment resulted in significantly lower levels of misreporting, while those who still misreported rationalized to an even greater extent.

<sup>2</sup> The audit standards acknowledge a difference between attitude and character by stating, “Some individuals possess an attitude, character, or set of ethical values that allow them to knowingly and intentionally commit a dishonest act.” (IAASB, 2009; PCAOB, 2005, Section A1). I refer to attitude and character together as a “predisposition.”

My finding of greatest concern is that misreporting participants who are higher in Machiavellianism feel significantly less guilt than misreporters who are lower in Machiavellianism. This result suggests that high Machiavellians are not only more likely to misreport in the presence of opportunity and motive, but they also bear a much smaller emotional burden from misreporting. Auditors, regulators and those charged with governance should be concerned about this finding, especially since some evidence suggests that Machiavellianism is positively correlated with performance (Aziz, May, & Crotts, 2002; Gable & Dangelo, 1994; Shultz, 1993). If employers promote employees whose performance is superior, as is logical, are they inadvertently promoting higher Machiavellians who are more likely to misreport?

This paper contributes to the fraud and accounting literature in three ways. First, it provides evidence of the frequency with which misreporting individuals rationalize their behavior and identifies rationalization categories used by misreporting individuals, answering calls for research on this important phenomenon (Hermanson, 2009). These findings can extend existing models of misreporting, such as Blanthorne and Kaplan’s (2008) tax misreporting model, while auditors could listen for common rationalizations in interviews as part of their fraud risk assessment. Second, evidence from this paper suggests that the third side of the fraud triangle could be more clearly explained; predispositions are not directly related to rationalizations. This is the first paper I am aware of that expressly examines the relation between attitudes and rationalizations. The findings are consistent with the theory and framework developed by Murphy and Dacin (2011). Finally, my results suggest that auditors and those charged with governance should identify individuals who are higher Machiavellian or look for signals of such behavior as a means of fraud prevention and detection.

The remainder of this paper proceeds as follows. The next section discusses the theories behind rationalization, attitudes, and Machiavellianism. Following that, I describe the research method and data analysis. The next section provides the results. The paper concludes with limitations and discussion of future research.

## Theory and hypotheses development

### *Setting the stage: Predispositions, misreporting and negative affect*

We expect that individuals who have a predisposition toward misreporting will misreport when opportunity and motive are present (IAASB, 2009; PCAOB, 2005). We also expect that individuals who misreport will experience negative affect (Damasio, 2007; Hotz, 2007).<sup>3</sup> Two types of negative affect could be experienced. First, a misreporting individual may experience a form of self-conscious moral emotion such as guilt (Haidt, 2009; Plant & Devine, 1998), which occurs because misreporting is against societal norms

<sup>3</sup> Negative affect is used synonymously with negative emotion or negative feelings in this paper. It refers to immediate emotions as opposed to longer-term moods.

of behavior (Bandura, 1991, 1999). Second, a misreporting individual may feel discomfort, caused by performing a counter-attitudinal behavior (Festinger, 1957). Because individuals do not like to experience negative affect, they actively look for ways to reduce those feelings. Rationalization is one way to reduce negative emotions (Murphy & Dacin, 2011).

#### *How easy is it to rationalize?*

The philosophy literature defines rationalization as, “the mental process of justifying conduct by adducing false motives”, or more broadly defined to include “justification for our opinions and theories as well as for our conduct” (Sloane, 1944, p. 12). Within social psychology, it is defined as, “a post-behavioral process through which a problematic behavior becomes less problematic for the person who has displayed it.” (Fointiat, 1998, p. 471). A rationalization can be true (i.e. a fact). In many cases, however, individuals reconstrue the context or circumstances of the particular situation in order to justify the act. In order to be effective in reducing negative affect, a rationalization must be believable to the “rationalizer” (Kunda, 1990). To the extent individuals are able to think of an effective rationalization, their bad behavior can be heightened (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Milgram, 1974).

Rationalization is similar in some ways to the concept of justification in the accountability literature. As it relates to accountability, justifying is “the act of providing evidence to support one’s judgments or decisions” (Peecher, 1996, p. 126). Likewise, individuals who rationalize are attempting to provide evidence supporting the acceptability of their act. However, there are two distinct differences between these forms of justification. First, rationalization comes about as a result of anticipated illegal or unethical behavior whereas an accountability setting usually does not contain an ethical dimension. One could think of a rationalization as a “sinister justification”.<sup>4</sup> Second, a rationalization is conjured primarily for oneself (Bandura, 1991, 1999) as opposed to an accountability setting in which the justification is conjured for the justifiee (Peecher, 1996). Webster defines *justify* in two distinct ways: (1) to show to be right or valid, and (2) to pronounce free from blame or guilt (Webster, 1996). The first of these definitions is consistent with justification in an accountability setting while the second is consistent with the type of justification that equates to rationalization.

As explained above, a key element distinguishing rationalization from any other type of explanation for behavior is the need to *self-justify* (Bandura, 1991, 1999). If individuals truly believe they did nothing wrong, there is no need to rationalize. An explanation of the behavior would be descriptive, void of any persuasive elements. The fraud triangle provides two excellent examples of explanations that do not reflect rationalization: opportunity and motivation. If misreporting individuals do not feel the need to self-justify, then they could explain misreporting behavior as follows: (1) because I could (i.e. the opportunity existed)

or, (2) because I wanted to (i.e. I was motivated to). For example, Graham et al. (2005) found that, when asked why they try to meet earnings management benchmarks, top executives responded with a motive: “maintain or increase our stock price” (Graham et al., 2005, p. 25).

On the other hand, if individuals view misreporting as unethical or contrary to their or society’s beliefs, a decision to misreport is more likely to be associated with rationalization. A rationalization is likely to contain elements of the context or situation to justify behavior (Festinger, 1957). For example, Richard Scrushy, the former CEO of HealthSouth, instructed his subordinates to cook the books in order to meet analyst’s forecasts, arguing that other companies do the same thing (Beam, 2009). In this situation, Scrushy argued it was acceptable to perpetrate fraud as long as others are doing the same thing; he was diffusing responsibility. In another situation, Scott Sullivan, the CFO of WorldCom, testified in court that Bernie Ebbers, the CEO, told him “we have to hit the numbers” (Latour & Young, 2005). In this situation, it appears that Sullivan was displacing responsibility by arguing he was told to alter the financial statements. Though some might construe both rationalizations as accurate, it does not change the fact that they were perpetrating fraudulent financial reporting. They construed the situation to throw responsibility for their act elsewhere.

Researchers in multiple fields have identified categories of rationalization, synthesized by Murphy and Dacin (2011) into seven categories: (1) moral justification, (2) advantageous comparison, (3) euphemistic labeling, (4) minimize, ignore, or misconstrue consequences of the act, (5) denial of the victim, (6) displacing responsibility, and (7) diffuse responsibility. Table 1 provides detailed definitions of each, along with examples in a misreporting context.

Given the above discussion, if a reporting situation exists in which there are no penalties for misreporting, we would expect misreporting individuals to explain their behavior in simple terms. For example, they are likely to say they misreported because they could (opportunity) or because they wanted the additional money (motive). In such circumstances, misreporting individuals should have little or no need to justify their actions. Yet, if many individuals rationalize, it provides evidence of its ubiquity.

In order to examine rationalization in greater depth, what if we attempted to impede individuals’ ability to use rationalization, *ex ante*? In other words, what if we attempted to impede the use of several specific and commonly used rationalizations? Would fewer individuals misreport? Would misreporting individuals still find other categories of rationalization to use?

#### *Are predispositions associated with rationalization and negative affect?*

Webster defines predisposed as, “inclined or influenced beforehand; made susceptible” (Webster, 1996). Predispositions can be in the form of an attitude or a character trait. Attitude is described as, “evaluative feelings of pro or con, favorable or unfavorable, with regard to particular objects; the objects may be concrete representations of things or actions, or abstract concepts” (Wicker, 1969). Attitudes are

<sup>4</sup> Individuals can also use rationalization in a positive manner. In the context of the fraud triangle, however, rationalization is used to justify illegal or unethical behavior, which has a negative connotation.

**Table 1**

Rationalization definitions, examples, and misreporters' use of rationalization in this experiment.

Category	Definition and general examples	Examples from this experiment	Rationalization frequency			
			B (%)	DEL (%)	CON (%)	Total (%)
(1) Moral justification (MJ)	Reconstructing the act as socially worthy or having a moral purpose. It is often used to justify acts of war or terrorism. Sometimes used along with appeals to a higher authority or loyalty to that authority. Accounting managers at WorldCom indicated that they booked fraudulent accounting entries for Scott Sullivan because of their loyalty to him (Pulliam, 2005). Some use this category to argue they are striking back at a malevolent system	"I need the money for school" "I am also trying to pay for college and any money I can get helps me"	0 (0)	1 (4)	3 (23)	4 (6)
(2) Advantageous comparison (AC)	Comparing the wrongful act against a much more flagrant act, to make the original act look better. Even if the infraction isn't minor, there are always larger ones for comparison purposes	"I didn't fully take advantage [didn't misreport to the fullest extent possible]"	4 (15)	4 (17)	2 (15)	10 (16)
(3) Euphemistic labeling	Using convoluted verbiage to make a wrongful act sound better. Scott Sullivan, former CFO of WorldCom, wrote a lengthy white paper to justify the capitalization rather than expensing of certain items in the financial statements (Cooper, 2005)	"...will allow me an even dollar amount" [earned 18.15 and reported 25.00]	4 (15)	4 (17)	2 (15)	10 (16)
(4) Minimize, ignore, or misconstrue consequences of the act	Minimizing, ignoring, or misconstruing any consequences of the act makes it appear the consequences are less than they are. This category can include related rationalizations such as, "no one was hurt", or "no one was hurt much". Bandura et al. (1996) found that participants using this category were less able to recall the harmful effects of an act while easily remembering other aspects of the experiment	"no one was hurt" "[reviewer] won't be much worse off" "the benefit to me is much greater than the loss to [the reviewer]"	5 (19)	5 (22)	1 (8)	11 (18)
(5) Denial of the victim	Placing blame onto the victim, arguing the victim is physically absent or unknown, or acting as though the victim is not human. This category is different from the previous one in that denial of the victim does not deny negative consequences, but rather focuses attention on the victim. Examples include "buyer beware", or the victim "had it coming" because s/he mistreated me. The second example provides evidence of a related motive (being mistreated) and rationalization (the victim had it coming)	"I don't know the reviewer and I have no obligation to help her"	0 (0)	0 (0)	1 (8)	1 (2)
(6) Displacing responsibility	Placing responsibility for the act with someone else. Scott Sullivan, CFO of WorldCom, testified that he was implicitly told by his boss, CEO Bernie Ebbers, to alter the financial statements to "hit the numbers" (Latour & Young, 2005)	"I was only responsible for following the guidelines as set out in the experiment"	5 (19)	0 (0)	0 (0)	5 (8)
(7) Diffusing responsibility	Sharing responsibility with others. Richard Scrushy, CEO of HealthSouth, allegedly instructed his subordinates to misreport by explaining that "everybody does it" (Stuart, 2005). Callahan (2004) argues that this category of rationalization is ubiquitous throughout U.S. society as a way of justifying cheating	"the accounting department should have foreseen all participants reporting \$40"	2 (8)	1 (4)	1 (8)	4 (6)
New: Entitlement	Deserving of more, regardless of anything else	"I felt I did better" "I deserved more money"	5 (19)	2 (9)	0 (0)	7 (11)
New: Disbelief	Claiming disbelief of how the rules work	"I think [the reviewer] might be compensated in other ways" "I don't believe that [the reviewer] is on aid here"	1 (4)	6 (26)	3 (23)	10 (16)
<b>Total Number of Rationalizations</b>			<b>26</b>	<b>23</b>	<b>13</b>	<b>62</b>
<b>Average Number of Rationalizations Used<sup>a</sup></b>			<b>1.73</b>	<b>1.53</b>	<b>1.63</b>	<b>1.63</b>

B = baseline, DEL = delicate level of manipulation, CON = concentrated level of manipulation.

The numbers in parentheses indicate the percentage of that particular rationalization category used in that treatment. For example, 15% (4/26) of the rationalizations used in the baseline were "advantageous comparison".

Source for the seven categories of rationalization: synthesis in Murphy and Dacin (2011).

<sup>a</sup> The average number of rationalizations used is calculated as the total number of rationalizations (e.g. 26 in the baseline) divided by the number of misreporting participants using any rationalization (e.g. 15 in the baseline).

relatively changeable, evidenced by a dissonance research paradigm examining attitude change following a counter-attitudinal behavior (Harmon-Jones & Mills, 1999).

While attitudes are easily changeable, and thus not necessarily as predictive of behavior, other related measures like character are more stable and theoretically more predictive. One such character trait is Machiavellianism. The Machiavellianism instrument has been used as a character measure for decades with robust results (Christie & Geis, 1970). The instrument measures the propensity of individuals to act in a manner consistent with the instrument's namesake: Machiavelli. A Machiavellian, or high Mach, generally views and manipulates others for his/her own purposes (Christie & Geis, 1970). High Machs tend to be more opportunistic and act in a manner consistent with the economic theory of self-interest (Gunnthorsdottir, McCabe, & Smith, 2002). They are more apt than low Machs to cheat if given rational arguments in favor of it, and when the probability of detection is low (Cooper & Peterson, 1981). It is reasonable to expect high Machs to be more likely to misreport when provided the opportunity and motivation.

Theoretically, a pre-existing attitude or character trait should be associated with the related behavior. However, it is less clear whether attitude or character should be related to either rationalization or negative affect. I find no theory describing a link between any predispositions and rationalization, except perhaps the fraud triangle which places them together. Some evidence links certain character traits with negative affect, or a lack thereof. For example, psychopaths do not experience remorse (Babiak & Hare, 2006). According to Christie and Geis (1970), high Machs feel less discomfort.

## Method

I conducted an experiment in which participants were allowed to misreport the outcome of their own performance for financial gain, using a mixed between-subject (three treatments) and within-subject (attitude and character) design. In this experiment, participants *act* on their choices rather than answering what they would do or how they would feel. This experimental design is preferable when dealing with decisions containing ethical implications because of prior literature asserting a tenuous link between what individuals say they will do and what they actually do.<sup>5</sup>

The experiment followed the temporal nature of the constructs under study – attitude and character precede behavior while rationalization is conjured within the reporting context. First, I administered a survey that began with distracter questions and followed with the attitude measure (see Appendix A.1) or Machiavellian instrument (see Appendix A.2), in randomized order.<sup>6</sup> Roughly 2 weeks

later, the same individuals were recruited to participate in my experiment. I asked participants for their names on the surveys and during the experiment in order to match predisposition and behavior data.

## Experimental procedures and participants

The baseline condition proceeded as follows. Participants entered the lab where they signed consent forms and completed the first set of affect measures (seventeen words or phrases capturing how they feel) in hard copy form. I handed out instructions and read them aloud. The instructions first pledged confidentiality, then explained that participants were to complete a computerized timed accounting quiz consisting of ten multiple choice questions that culminated in an earned income. Each correct (incorrect) answer resulted in a draw from a normally distributed income bin with a range from \$1.00 to \$4.00 (–\$1.00 to \$2.00), in increments of \$0.01. After reading along, each participant turned to a networked computer and completed the quiz.

Before participants learned the results of their quiz, they were instructed to turn back to me for further instructions. I handed out the second set of instructions and read them aloud. These instructions explained that each computer would privately report the participant's earned income from the quiz, and then will instruct the participant to report an income to me through the networked computers. I would pay each participant the income s/he reports. The instructions explained that the computer accepted any income within the range of possibilities, between 0 and \$40.00. As I read the instructions, I maintained a neutral expression to reduce potential demand effect. Physical barriers between each computer station kept participants from looking at or talking with one another. Participants then turned back to their computers where they answered three questions (called the rules knowledge test) designed to ensure they understood the payment scheme. They were informed of their earned income and were asked to report an income.

Immediately after participants reported an income, they completed the same affect measures as before but through the computer, in randomized order to eliminate order effects. Following this, the computer displayed the participant's earned income and reported income and, if the participant misreported, it asked "Why did you report more than you earned?" Participants answered in an open-ended text box which was qualitatively analyzed for rationalization. Finally, participants answered comprehension check questions. At the end, the computer provided instructions to wait for the researcher to pay them. I paid each participant, privately, as s/he left the room. After I completed all experimental sessions, I provided results to the participants and informed them that the survey and experiment were related.<sup>7</sup>

<sup>5</sup> For example, moral hypocrisy theory posits that individuals seek to appear moral without necessarily acting so (Batson, Kobrynowicz, Dinnerstein, Kampf, & Wilson, 1997; Stone, Weigand, Cooper, & Aronson, 1997) while the social desirability bias is the tendency to overestimate (underestimate) the likelihood of performing a desirable (undesirable) action (Chung & Monroe, 2003).

<sup>6</sup> None of the participants were current or former students from classes I taught. Other individuals administered the surveys, while I conducted all sessions of the experiment, in order to reduce any association participants might have made between the surveys and the experiment.

<sup>7</sup> Survey participants were correctly told that only the researcher (me) would have access to their answers. In order to avoid the perception that the ethically-charged surveys were associated with the experiment, I failed to inform participants that they were part of the same overall study until after all experimental sessions were completed. The respective ethics and review boards at both universities approved this methodology, and participants expressed no concerns.



In addition to the baseline condition, I designed a manipulation as a further test of the power and ubiquity of rationalization. I systematically reduced the number of rationalizations available to participants, *ex ante*, using two levels of impediment: delicate and concentrated. The manipulation is described in the Variables and analyses section.

Two hundred eleven students in upper-level undergraduate or masters of accounting classes at two North American universities completed the surveys and participated in my experiment. They were randomly assigned one of three treatments at each university. I eliminated five participants who failed all the payment scheme questions, since they apparently did not understand or attend to the rules. Of the remaining 206 participants, the average age was 21, with a 104 male/102 female split. Seventy-two percent were accounting majors.<sup>8</sup>

### *Variables and analyses*

I now describe the variables used, how I measured them, and how I analyzed them. This discussion is organized identically to the theory section: (1) Setting the stage: predispositions, misreporting and negative affect, (2) How easy is it to rationalize? and (3) Are predispositions associated with rationalization and negative affect?

#### *Variables and analyses for setting the stage: Predispositions, misreporting and negative affect*

I captured two predisposition measures, one for an attitude and one for a character trait. The attitude variable was constructed by first consulting literature to determine the circumstances in which attitude best predicts behavior. The following elements are necessary: (1) other social influences are minimal (Triandis, 1982), (2) the attitude is specific to the behavior (Ajzen, 1982; Ajzen & Fishbein, 1977), and (3) the attitude is potent and internalized (Krause, 1995; Plant & Devine, 1998). As long as other social influences are minimal, the theory holds that the stronger the attitude is internalized or held as a personal belief, and the more specific it is, the more predictive it is of behavior. I defined the construct of interest to be the *attitude toward reporting the results of one's own performance*, because this captures an important psychological element of the reporting environment for many top executives (Knechel, Salterio, & Ballou, 2007). For example, Graham et al. (2005) found that most CFOs worry that they are seen as incompetent if they miss earnings targets, suggesting that CFOs view the financial statements as reflecting their own performance as executives. I developed seventeen short scenarios that fit this definition and participants' likely experiences, ten of which are reported in the final survey in Appendix A.1. For each scenario, participants were asked

to indicate their level of agreement on a 7-point Likert scale. I administered a draft instrument to students in accounting classes. With a total of 119 pilot surveys, I analyzed a correlation matrix and conducted both a principal-axis and principal components factor analysis with varimax rotation (Devine, Monteith, Zuwerink, & Elliot, 1991; Monteith, Devine, & Zuwerink, 1993; Nunnally & Bernstein, 1994). Results were consistent between the methods. Ten of the seventeen scenarios loaded strongly onto one factor, accounting for 42% of the total variance. The final attitude survey in Appendix A.1 (Chronbach's  $\alpha = 0.844$  from the pilot participants and 0.824 from the study participants) contains these ten scenarios.<sup>9</sup> The attitude survey ended with a series of questions that, together, created an index of how strongly the attitude was internalized (Devine et al., 1991). All participants indicated a strong attitude.<sup>10</sup> For a measure of character, I used the Machiavellian instrument (Christie & Geis, 1970) reported in Appendix A.2.

I measured misreporting behavior in two ways: (1) MIS-AMT, the amount by which a participant misreported, which is the reported amount minus the earned amount, and (2) MIS, dichotomously as misreporting or not.

To measure negative affect, I closely followed the work of Devine et al. (1991), Monteith et al. (1993), and Plant and Devine (1998). Six words or phrases captured discomfort (DIS): bothered, distressed, negative, tense, uncomfortable, and uneasy (Chronbach's  $\alpha$  of 0.861 and 0.924 at each point in my experiment, respectively). Six words or phrases captured guilt (GUILT): annoyed at myself, disappointed with myself, guilty, regretful, self-critical, and shame (Chronbach's  $\alpha$  of 0.877 and 0.885 respectively). I also measured positive-self to allow a mix of positive and negative terms, captured by the following: friendly, content, good, happy, and optimistic (Chronbach's  $\alpha$  of 0.833 and 0.899 respectively). Both times these measures were taken, participants were asked *how they feel right now*, using a 7-point Likert scale from 1 = "Does not apply at all" to 7 = "Applies very much". For each variable, the sum at time two in the experiment (immediately after reporting an income) minus the sum at time one (before experiment begins) captures the change in how the participant felt. If DIS or GUILT is positive, it indicates the participant experienced increased discomfort or guilt immediately after making his/her reporting decision. I also combined DIS and GUILT to form NEG AFFECT, a variable intended to capture negative affect in total.

I examined whether predispositions were associated with reporting behavior using a logistic regression analysis (not reported herein) of misreporting (MIS) on predispositions (ATT, MACH) and control variables (DEL and CON, the two levels of my manipulation, along with EARNED and TIME). Both ATT and MACH were significantly positively associated with MIS ( $p < 0.05$ , one-tailed), thus establishing

<sup>8</sup> I examined whether any demographic data (age, gender, major, university) impacted my analyses or results. Participants majoring in accounting misreported significantly less than all others ( $p = 0.034$  one-tailed). Further analysis revealed that accounting majors in my study were significantly lower in Machiavellianism ( $p = 0.003$  one-tailed), suggesting self-selection into accounting since Machiavellianism is a character trait. None of the other variables were significant and their presence did not change any inferences.

<sup>9</sup> A content validity assessment supports each scenario as adequately capturing the construct of interest (Rungtusanatham, Anderson, & Dooley, 1999).

<sup>10</sup> Of the 205 participants who completed the attitude survey, no one rated his/her attitude as weakly held, three were neutral, and 202 reported their attitude as strongly held. I eliminated no participants due to lack of attitude strength.

the validity of the link between attitude/Machiavellianism and misreporting.

I also analyzed the predictors of negative affect by regressing negative affect (NEG AFFECT) on MISAMT, ATT, MACH, and EARNED. I found that misreporting was significantly positively associated with negative affect ( $p < 0.05$ , one-tailed), thus establishing the validity of the link between misreporting and the experience of negative affect.

#### *Variables and analyses for ease of rationalization*

The first research question asks whether misreporting individuals use a rationalization to explain their behavior and if so, how easy is it to rationalize. Rationalization was captured when the computer asked misreporting participants: “Why did you report more than you earned?” Answers were first coded by two Ph.D. Candidates as a rationalization or not. They independently analyzed each answer according to the definition of a rationalization. If an answer fit the definition, they coded RAT as 1, otherwise 0. The initial inter-rater reliability was 0.727. After further discussion and recoding, the inter-rater reliability was 0.880. I only coded an answer as a rationalization if both raters agreed. Rationalizations were then further coded into categories according to Murphy and Dacin (2011). A research assistant and I independently categorized rationalizations into one or more of seven categories. The initial inter-rater reliability was 0.925. After further discussion, we resolved all disagreements.

To address the question of how easy it is to rationalize, I designed a manipulation to impede rationalization usage, *ex ante*. There are two levels of manipulation, with the second being stronger than the first. In the first level, labeled *delicate*, I removed the most common rationalization from pilot tests: no one was hurt. Gneezy (2005) found that participants who lie for financial gain are also sensitive to the financial harm to others. I operationalized this impediment as follows. After participants completed the quiz, but before they learned their results, I instructed them that *any* misreporting will result in a financial hurt to another individual in the room. Specifically, misreporting would hurt a student (introduced to the group) who was working his/her way through school with the help of financial aid. I explained that this student, in the role of “reviewer”, would be asked to guess the accuracy of the report made by each participant. No matter what the reviewer guesses, his/her earnings would be reduced by either \$3.00 or \$5.00 for each misreport in the group, and either increased by \$1.00 or remain the same for every accurate report, depending upon the accuracy guesses.<sup>11</sup> I ensured the saliency of this manipulation by going through an example of how the student would be financially hurt by misreporting (see Appendix B). Participants then turned back to their computers, completed the rules knowledge test, and the remainder of the treatment proceeded the same as the baseline.

In the second manipulation level, labeled *concentrated*, I followed the same process as the delicate treatment, and I inserted reminders in an attempt to remove other common

rationalizations. The following message appeared on participants’ computer screen prior to asking for a report:

“Before asking you to report your income, please consider the following questions:

- Since this program accepts any income up to \$40.00, perhaps you are considering reporting more income than you earned. Do you think it is acceptable to over-report your income to get more money?
- Though you may argue that reporting more than you earned is a minor offense compared to many other acts, do you think that makes it acceptable to misreport your income?
- Remember that the reviewer is a student working toward his/her degree with the support of financial aid, and has nothing to do with the set-up of this experiment. The reviewer is financially hurt if you misreport. Though it may seem to be a small loss to you, do you think the reviewer will see it that way?
- If you think that many other participants in this experiment are likely to misreport for their own gain at the expense of the reviewer, does that make it acceptable for you to do so?”

The first statement introduced the notion of misreporting in general and was intended to get the participants thinking about the ethics of the decision and how they might feel if they misreport. The second statement asked the participants to consider the common “advantageous comparison” rationalization (category 2 in Table 1). The third statement dealt with the “minimizing, ignoring, or misconstruing the consequences of the act” rationalization (category 4), while the last statement got participants thinking about the “diffusing responsibility” rationalization (category 7). Though other rationalizations remain, these covered the most viable justifications given the experimental setting, and they were the most common rationalizations used in pilot tests. I refer to this manipulation level as *concentrated* because several rationalizations were addressed, and in a more direct manner than in the delicate level. The remainder of the treatment progressed as the others.

To analyze the data, I compared the proportion of misreporters who used rationalization versus those who did not, within each treatment and in total. I also performed qualitative and correlation analyses of rationalization categories, examining only the participants who misreported ( $n = 59$ ).

#### *Variables and analyses for the association between predispositions, rationalization and negative affect*

My final research question asks whether predispositions are associated with rationalization or negative affect. First, I examined the relation between each predisposition and rationalization by performing a correlation analysis, using the entire sample as well as the sample of misreporters only. I also performed difference tests (*t*-tests) by comparing the average attitude (Machiavellian) score of those who used a rationalization versus those who did not.

To examine the association between predispositions and negative affect, I performed the same correlation analysis, along with a regression analysis and the following model:

<sup>11</sup> This manipulation uses no deception. I recruited students on financial aid to play the role of reviewer and they were paid according to the payment scheme explained in Appendix B.

$$\begin{aligned} \text{DIS or GUILT} = & \beta_0 + \beta_1 \text{MISAMT} + \beta_2 \text{ATT} + \beta_3 \text{MACH} \\ & + \beta_4 (\text{MISAMT} * \text{ATT}) + \beta_5 (\text{MISAMT} \\ & * \text{MACH}) + \beta_6 \text{EARNED} + \varepsilon \end{aligned}$$

DIS is the difference between the sum of the six psychological discomfort measures at time two (immediately after reporting) and at time one (before the experiment begins). GUILT is the difference between the sum of six guilt measures at time two and at time one. MISAMT is the reported income minus earned income; the amount by which a participant misreported. ATT represents the attitude toward misreporting. A higher score indicates an attitude favoring misreporting. MACH represents the score on the Machiavellian instrument. A higher score is posited to be associated with misreporting. EARNED is the amount actually earned by the participant on the quiz.

I interacted ATT with MISAMT and MACH with MISAMT to explore whether attitude or Machiavellianism moderate the relation between misreporting and negative affect. EARNED is included in this analysis to control for individuals who may have felt badly because they scored poorly on the quiz. I used the entire sample of 206 participants for the regression analysis.

## Results

### *Comprehension and manipulation checks*

I administered comprehension and manipulation checks. To test participants' comprehension that the opportunity and motive to misreport were provided in this experiment, the computer asked participants, at the end of the experimental session, to state their level of agreement with the following statements:

1. I felt pressure to perform well on the quiz (mean 5.39, SD 1.64).
2. I was given the opportunity to report as much as \$40.00 in this exercise, and be paid that amount, regardless of how much I actually earned (mean 6.52, SD 1.21).
3. I am motivated by money (mean 5.47, SD 1.31).

Answers were on a 7-point Likert scale from 1 = strongly disagree to 7 = strongly agree; four indicates a neutral response. Means and standard deviations are reported after each statement above. The mean responses to all three questions are significantly above the neutral point ( $p < 0.05$ ). From this analysis, I conclude that the experiment provided opportunity and motivation to misreport.

As a manipulation check, I administered three questions (the rules knowledge test) before they were asked to report their income, to ensure they understood the payment scheme. The rules knowledge test consisted of three multiple choice questions with "what if" scenarios. In each scenario, the reporter earns \$17.82. The questions asked what would happen if the reporter reports \$17.80, \$17.82, and \$25.75 respectively. Answers differ between the baseline and manipulation. If the participant chooses the correct answer, the computer responds with a positive acknowledgment. If the participant chooses an incorrect answer, the computer explains which is the correct answer and why.

To be conservative, I eliminated five participants who answered all three questions incorrectly. I then divided the remaining participants into those who answered any of the three questions wrong and those who answered all the questions correctly. I find a treatment effect of the manipulation ( $p = 0.016$  between the baseline and delicate level, and  $p = 0.097$ , between the baseline and concentrated level, one-tailed). Participants in the manipulation answered more of the rules knowledge test questions incorrectly than in the baseline, suggesting that the manipulation was more difficult for the participants to understand than the baseline.

I further analyzed the success of the manipulation by examining the reasons provided for misreporting. If the delicate manipulation level is effective, the baseline treatment is the only place in which misreporting participants would argue they were not hurting anyone. My findings were consistent. Though a few participants still used this category, they used it differently. Instead of arguing no one was hurt, several participants in the manipulations argued "[the reviewer] isn't hurt *much*" (see Table 1, category 4 for details). Given the reminder in the concentrated manipulation level, misreporting participants should not have argued their act was minor (advantageous comparison, category 2 in Table 1) or that everybody else is likely to misreport (diffusion of responsibility, category 7). I identified two answers coded as advantageous comparison and one as diffusion of responsibility in the second manipulation. One participant using advantageous comparison indicated, "This is a simulation, not real life". This answer is not inconsistent with my reminder of "minor offense compared to many other acts", because the answer construes the setting, not the act. Another participant provided both a similar advantageous comparison ("things would be different had this been an actual company") and diffusion of responsibility ("I think you will find common results across the board") answer, which appears to be a direct argument against the reminder. This analysis, coupled with the fact that the rules knowledge test explains the correct answer when a participant responds incorrectly, supports my conclusion that the manipulation was understood and attended to by the participants.

### *Descriptive statistics and results of testing*

Table 2 reports descriptive statistics by reporting behavior (panel A) and by treatment (panel B). Thirty-five percent of participants misreported in the baseline, 34% in the delicate treatment, and 15% in the concentrated treatment. On average, misreporters reported \$14.75 more than they earned, and this does not differ across experimental conditions.<sup>12</sup>

<sup>12</sup> Within the baseline treatment, one participant reported \$0.02 less than earned, while another reported \$0.03 more than earned, both stating they did not want pennies. I coded both as honest reporting. All the remaining participants whose reported income differed from their earned income, reported more (all coded as misreporting). Four participants misreported by amounts less than \$1.00 over their earned income (\$0.63, 0.31, 0.30 and 0.23 more than earned, respectively), while all the rest misreported by at least \$2.00.



**Table 2**  
Descriptive statistics.

Variables:	Full sample (n = 206)			Honest reporters (n = 147)			Misreporters (n = 59)			Difference tests (two-tailed)		
	n	mean	SD	n	mean	SD	n	mean	SD			
<i>Panel A: By reporting behavior</i>												
ATT	205 <sup>a</sup>	25.07	9.32	147	23.83	8.73	58	28.22	10.08	<b>0.004</b>		
MACH	206	69.91	11.61	147	68.70	10.21	59	72.93	14.17	<b>0.040</b>		
EARNED	206	18.17	4.35	147	18.72	4.44	59	16.81	3.83	<b>0.003</b>		
MIS	206	0.29	0.45	0	0	0.00	59	1	0.00	n/a		
MISAMT	206	4.22	8.17	147	0	0	59	14.75	8.84	<b>0.000</b>		
DIS	206	2.83	7.81	147	0.39	5.45	59	8.90	9.60	<b>0.000</b>		
GUILT	206	3.74	7.94	147	1.04	5.24	59	10.46	9.44	<b>0.000</b>		
RAT	206	0.18	0.39	147	0	0	59	0.64	0.48	<b>0.000</b>		
<i>Panel B: By treatment<sup>a</sup></i>												
Variables	Baseline (B) (n = 74)			Delicate (DEL) (n = 67)			Concentrated (CON) (n = 65)			Difference tests (two-tailed)		
	n	mean	SD	n	mean	SD	n	mean	SD	B and DEL	B and CON	DEL and CON
ATT	74	27.26	9.82	66	24.47	9.21	65	23.20	8.45	<b>0.085</b>	<b>0.010</b>	0.412
MACH	74	70.80	10.73	67	70.81	13.00	65	67.98	10.98	0.997	0.130	0.180
EARNED	74	18.32	4.35	67	18.36	4.33	65	17.81	4.42	0.961	0.492	0.472
MIS	74	0.35	0.48	67	0.34	0.48	65	0.15	0.36	0.921	<b>0.007</b>	<b>0.011</b>
MISAMT	74	5.08	9.22	67	4.78	8.01	65	2.67	6.86	0.839	<b>0.081</b>	0.106
DIS	74	3.26	8.22	67	4.58	7.84	65	0.53	7.06	0.329	<b>0.037</b>	<b>0.002</b>
GUILT	74	4.55	8.60	67	4.24	8.45	65	2.29	6.42	0.826	<b>0.078</b>	0.138
RAT	74	0.20	0.41	67	0.22	0.42	65	0.12	0.33	0.761	0.204	0.128

B = baseline, DEL = delicate level of manipulation, CON = concentrated level of manipulation.

The Difference Tests column reports the two-tailed *p*-value of the difference in means, equal variances not assumed, using the following indicators: **Bold** = significant at 0.05 level; **Bold italics** = significant at 0.10 level (two-tailed).

Variable definitions:

ATT = measure of attitude toward misreporting, using a 7-point Likert scale. The range is from 10 to 70. A score of 40 is neutral, while >40 indicates an attitude favoring misreporting. This measure was taken 2 weeks before the experiment.

MACH = score on the Machiavellian instrument, using a 7-point Likert scale. The range is from 20 to 140. A score above 80 indicates high Mach. This measure was taken 2 weeks before the experiment.

EARNED = the amount the participant actually earned on the quiz, based on answers to the quiz questions.

MIS = 1 if participant misreported; 0 otherwise.

MISAMT = reported income minus earned income; the amount by which a participant misreported.

DIS = difference between the sum of the six psychological discomfort measures at time two (immediately after reporting) and at time one (before the experiment begins). A higher number indicates increased discomfort.

GUILT = difference between the sum of six psychological guilt measures at time two and at time one. A higher number indicates increased guilt.

RAT = 1 if a misreporting participant uses a rationalization to explain behavior, based on the question, "Why did you report more than you earned?"; 0 otherwise.

B = 1 if the participant was in the baseline treatment, 0 otherwise.

DEL = 1 if the participant was in the delicate level of manipulation; 0 otherwise. The delicate level was designed to impede rationalization use by introducing a participant who would be hurt by any misreporting among the group.

CON = 1 if the participant was in the concentrated level of manipulation; 0 otherwise. The concentrated level was designed to impede rationalization use even more, by adding to the delicate level specific reminders intended to impede other rationalizations.

<sup>a</sup> One individual failed to complete the entire attitude survey.

Panel A reports that the difference in the means of attitude and Machiavellianism between honest reporters and misreporters is significant, while the mean of both groups lie below the level posited to favor misreporting. Panel B indicates that participants in the baseline are significantly higher in attitude favoring misreporting. While honest reporters experience very little change in discomfort or guilt, misreporters show significant increases in both the mean and standard deviation. Participants in the concentrated treatment experienced less discomfort and guilt, probably because significantly fewer misreported.

In Table 3, panel A reports correlations of relevant variables for the entire sample. The correlations generally follow expectations. Attitude and Machiavellianism are both highly correlated with misreporting, whether measured dichotomously (MIS) or by misreporting amount (MISAMT,  $p < 0.05$ , two tailed for each). Likewise, misreporting is

highly correlated with both measures of negative affect and with rationalization (all at  $p < 0.05$ , two tailed). The negative correlation between EARNED and MIS (and EARNED and MISAMT) indicates that participants who earned less on the quiz tended to misreport more. While discomfort is significantly correlated with both levels of manipulation ( $p < 0.05$ , two tailed), guilt is not, consistent with the notion that they are distinct types of negative affect.

Panel B of Table 3 reports correlations for misreporting participants only. Several correlations are worth noting. First, there is a negative correlation between MACH and GUILT ( $p < 0.10$ , two tailed), indicating that higher Machs who misreport experience significantly less guilt than other misreporters. GUILT and RAT are also negatively correlated ( $p < 0.10$ , two tailed) suggesting that misreporting individuals who rationalize are able to reduce their level

**Table 3**

Correlation analysis.

	ATT	MACH	EARNED	MIS	MISAMT	DIS	GUILT	RAT	DEL	CON	
Panel A: All participants (n = 206)											
ATT	1	0.507**	−0.180**	0.202**	0.228**	0.048	0.105	0.195**	−0.047	−0.130*	
MACH	0.489**	1	0.000	0.125**	0.146**	−0.014	0.059	0.094	0.035	−0.127*	
EARNED	−0.162**	0.037	1	−0.224**	−0.264**	−0.200**	−0.170**	−0.110	0.007	−0.037	
MIS	0.213**	0.165**	−0.198**	1	0.970**	0.440**	0.482**	0.751**	0.087	−0.199**	
MISAMT	0.251**	0.184**	−0.238**	0.818**	1	0.438**	0.494**	0.723**	0.075	−0.182**	
DIS	0.119*	−0.015	−0.149**	0.489**	0.407**	1	0.604**	0.271**	0.175**	−0.163**	
GUILT	0.143**	0.030	−0.166**	0.538**	0.467**	0.716**	1	0.256**	0.057	−0.109	
RAT	0.213**	0.138**	−0.076	0.751**	0.596**	0.322**	0.322**	1	0.071	−0.107	
DEL	−0.045	0.054	0.030	0.087	0.048	0.155**	0.044	0.071	1	−0.471**	
CON	−0.137**	−0.113	−0.057	−0.199**	−0.129*	−0.198**	−0.124*	−0.107	−0.471**	1	
	ATT	MACH	EARNED	MISAMT	DIS	GUILT	RAT	AC	MJ	DEL	CON
Panel B: Misreporting participants only (n = 59)											
ATT	1	0.522**	−0.051	0.206	0.025	0.075	0.103	0.229*	0.118	−0.141	0.035
MACH	0.501**	1	0.008	0.153	−0.105	−0.192	0.000	−0.001	−0.002	0.072	0.007
EARNED	−0.107	0.031	1	−0.312**	−0.027	−0.052	0.241*	−0.004	0.032	−0.016	0.052
MISAMT	0.234*	0.132	−0.281**	1	0.064	0.115	−0.046	0.125	−0.075	−0.096	0.138
DIS	0.052	−0.097	0.005	0.020	1	0.661**	−0.146	−0.072	−0.075	0.074	−0.011
GUILT	0.067	−0.236*	−0.034	0.075	0.741**	1	−0.250*	−0.009	0.121	0.044	0.015
RAT	0.143	0.032	0.234*	−0.047	−0.105	−0.194	1	0.336**	0.200	0.014	0.147
AC	0.267**	0.034	0.001	0.155	−0.095	−0.022	0.336**	1	0.238*	0.009	0.037
MJ	0.076	−0.027	0.006	−0.063	−0.082	0.073	0.200	0.238*	1	−0.077	0.417**
DEL	−0.131	0.132	0.023	−0.074	0.060	0.039	0.014	0.009	−0.077	1	−0.361**
CON	−0.006	0.012	0.042	0.136	−0.005	0.026	0.147	0.037	0.417**	−0.361**	1

Pearson (parametric) correlations are reported left of the diagonal (italicized areas). Spearman's rho (nonparametric) correlations are reported right of the diagonal.

Variable definitions:

ATT = measure of attitude toward misreporting, using a 7-point Likert scale. The range is from 10 to 70. A score of 40 is neutral while >40 indicates an attitude favoring misreporting.

MACH = score on the Machiavellian instrument, using a 7-point Likert scale. The range is from 20 to 140. A score above 80 indicates high Mach.

EARNED = the amount the participant actually earned on the quiz, based on answers to the quiz questions.

MIS = 1 if participant misreported; 0 otherwise.

MISAMT = reported income minus earned income; the amount by which a participant misreported.

DIS = difference between the sum of the six psychological discomfort measures at time two (immediately after reporting) and at time one (before the experiment begins).

GUILT = difference between the sum of six psychological guilt measures at time two and at time one.

RAT = 1 if a misreporting participant uses a rationalization to explain behavior; 0 otherwise.

Rationalization categories:

AC = advantageous comparison (i.e. justifying "some" misreporting, but not the entire amount possible).

MJ = moral justification (i.e. misreporting for a good cause, such as needing the money for school).

DEL = 1 if the participant was in the delicate level of manipulation; 0 otherwise. The delicate level was designed to impede rationalization use by introducing a participant who would be hurt by any misreporting among the group.

CON = 1 if the participant was in the concentrated level of manipulation; 0 otherwise. The concentrated level was designed to impede rationalization use even more, by adding to the delicate level specific reminders intended to impede other rationalizations.

\* Correlation is significant at the 0.10 level (two-tailed).

\*\* Correlation is significant at the 0.05 level (two-tailed).

of guilt to a greater extent than those who do not rationalize. Both panels A and B indicate a relative lack of correlation between rationalization and predisposition.

### Results of rationalization tests

My first research question addresses the use of rationalization. I start with Table 4 Panel A, which provides examples of misreporting participants' answers indicating a non-rationalization (i.e. opportunity or motivation). As reported in panel B, when asked why they reported more than they earned, the majority of misreporting participants used a rationalization (58%, 65%, and 80% in the baseline, delicate and concentrated experimental conditions respectively). Results of a Chi-square test reveal a significant difference ( $p = 0.027$ ). Misreporting participants use rationalization more to explain their behavior than they use either opportunity or motivation.

I examined the use of rationalization as it was obstructed, reported in Table 4, panel C. Difference tests reveal a marginally significant increase in the use of rationalization in the concentrated treatment versus the baseline ( $p = 0.097$ , one-tailed). Despite the obstruction of three of the seven rationalization categories, other rationalizations were used in the concentrated treatment. A few participants used the same categories that were targeted for elimination; they used the category in a different way. For example, two individuals who used the advantageous comparison category in the concentrated manipulation level argued that the setting was minor rather than the act of misreporting.

I performed a qualitative analysis of the rationalization categories used by misreporting participants. Results are reported in Table 1, along with examples of each category from participants who misreported in this experiment.

**Table 4**

Misreporting participants' use of rationalization.

Answer	Commentary	
Panel A: Examples of answers that are not rationalizations:		
"Because I know I get paid the amount I report", "Because it was easy to do", "There was no reason not to report more than I earned", "I knew I would get whatever I put down".	Examples of opportunity	
"Because I wanted more money", "To obtain a higher income", "To maximize my pay", "It was profitable for me to do so".	Examples of motivation	
	Total number of misreporters	Number of misreporters using a rationalization <sup>a</sup>
Panel B: Descriptive statistics and chi-square test		
Baseline (B)	26	15 (58%)
Delicate level of manipulation (DEL)	23	15 (65%)
Concentrated level of manipulation (CON)	10	8 (80%)
Total	59	37 (62%)
Chi-square of RAT: 4.898 (significant 0.027)		
Difference test	P-value, one-tailed	
Panel C: Difference tests of the use of rationalization:		
B and DEL	0.299	
B and CON	0.097	
DEL and CON	0.194	

The Difference Tests report the one-tailed *p*-values of the difference in means of rationalization between treatments, equal variances not assumed. *Bold italics* = significant at 0.10 level.

RAT = 1 if the participant provided a rationalization, 0 otherwise, to the question, "Why did you report more than you earned?"

B = baseline treatment.

DEL = delicate level of manipulation, designed to impede rationalization use by introducing a participant who would be hurt by any misreporting among the group.

CON = concentrated level of manipulation, designed to impede rationalization use even more, by adding to the delicate level specific reminders intended to impede other rationalizations.

<sup>a</sup> The first number is a count (i.e. 15 of the 26 misreporting participants in the baseline used a rationalization). The number in parentheses is the percentage of misreporting participants using a rationalization (i.e. 58% of misreporting participants in the baseline used a rationalization).

Participants used the full range of rationalization categories. The average number of rationalizations used by each misreporting participant in each condition remained stable near 1.63, even after several categories of rationalization were impeded. I identified a new rationalization category labeled entitlement.<sup>13</sup> Seven participants said they felt they performed better on the quiz than the results indicated, even though the results were correct. This specific rationalization category is important for auditors or those charged with governance when top executives view the financial statements as a direct reflection of their own performance. If executives believe they performed better than the financial statements indicate, they may be more inclined to misreport and argue entitlement.

Finally, I performed a correlation analysis of each rationalization category with the other variables. Rationalization categories having significant correlations are reported in Table 3 panel B. I found a significant association between the concentrated treatment and the use of moral justification ( $p < 0.05$ , two tailed). More misreporters in this treatment argued they, too, were students and needed money for school. This provides further evidence of how rationalizing individuals can reconstrue the setting in different ways.

<sup>13</sup> I also identified a new rationalization category labeled "disbelief". Ten participants indicated they did not believe the experiment as it was explained to them, especially regarding how the reviewer was paid. Though I cannot determine whether these are true rationalizations, Bandura et al. (1996) argue that rationalizing individuals will discredit evidence of the harm they cause.

To summarize my results with respect to rationalization, most misreporting individuals used rationalization even when there was no apparent need to, and they used a full range of them. When rationalization was impeded in a concentrated manner, significantly fewer participants misreported. Of those who still misreported, however, rationalization was used even more. These results suggest that rationalization is relatively easy to use.

#### *Results of association tests: Predispositions, rationalization and negative affect*

My final research question explores whether attitude or Machiavellianism is associated with rationalization and negative affect. First, I discuss results with respect to predispositions and rationalization. Panel B of Table 3 reports no significant correlations, nor does Table 5 which reports results of difference tests.<sup>14</sup> I conclude that the attitude toward reporting the results of one's own performance to others, and Machiavellianism, have no direct correlation with the use of rationalization.

Second, I discuss results of my examination of association between predispositions and negative affect. Recall that my two operational measures of negative affect are discomfort and guilt. Table 6 reports the results of regression analyses of negative affect on misreporting and its interaction with both predispositions, using the entire

<sup>14</sup> I also performed the same difference tests using only misreporters from the baseline ( $n = 26$ ) and only misreporters from the manipulation ( $n = 33$ ), in case the manipulation impacts participants' use of rationalization. I found no significant results in any tests.

**Table 5**

Difference tests of attitude, Machiavellianism and the use of rationalization.

Difference tests	P-value, one-tailed
<i>ATT and RAT</i>	0.141
Mean ATT of those who used a rationalization: 29.30	
Mean ATT of those who did not use a rationalization: 26.33	
<i>MACH and RAT</i>	0.404
Mean MACH of those who used a rationalization: 73.26	
Mean MACH of those who did not use a rationalization: 72.33	

The difference tests report the one-tailed *p*-values of the difference in means of attitude and Machiavellianism of misreporting participants who used a rationalization or not (*n* = 59).

Variable definitions:

ATT = measure of attitude toward misreporting, using a 7-point Likert scale. The range is from 10 to 70. A score of 40 is neutral while >40 indicates an attitude favoring misreporting.

MACH = score on the Machiavellian instrument, using a 7-point Likert scale. The range is from 20 to 140. A score above 80 indicates high Mach.

RAT = 1 if the participant provided a rationalization, 0 otherwise, to the question, “Why did you report more than you earned?”.

sample of 206 observations. Panel A examines discomfort as the dependent variable while panel B examines guilt. I find that MACH is marginally significantly negatively correlated with DIS ( $p = 0.081$ , one-tailed, from panel A) and (MISAMT  $\times$  MACH) is significantly negatively correlated with GUILT ( $p = 0.022$ , one-tailed, from panel B). These findings suggest that higher Machs do not experience negative affect the way others do. Higher Machiavellians experience less discomfort in general, consistent with prior literature (Christie & Geis, 1970). More concerning, higher Machiavellians who misreport experience significantly less guilt than other misreporters. This finding should be of concern to auditors and those charged with governance.

### Discussion

Many accounting scholars discuss whether reporting behavior is consistent with economic theory (Evans, Hannan, Krishnan, & Moser, 2001; Kim, Evans, & Moser, 2005; Salterio & Webb, 2006). Economic theory suggests that individuals make rational decisions in their own best interests. Given the parameters of this experiment, it would be rational and in one's self-interest to misreport; this is what higher Machs do in my experiment. Perhaps high Machiavellians represent the true *homo economicus*. However, it is concerning that higher Machiavellians misreport more with significantly less guilt. This finding suggests that, in the presence of both opportunity and motive, higher Machs will be more likely to misreport, and with less compunction. Given that the range of Machiavellianism in my sample is on the lower side (with a mean of 70, a range from 45 to 114, and only 32 of 206 participants above the neutral point of 80 as true high Machs), I expect results to be even stronger for individuals who are higher on the Machiavellian scale. Auditors and those charged with governance should consider mea-

suring executives' levels of Machiavellianism and be aware of behavior that signals it. Regulators should consider identifying Machiavellianism within this side of the fraud triangle as a character measure of particular concern.

Some may be surprised that I found so little correlation between predispositions and rationalization when they constitute the same side of the fraud triangle. I argue my findings are consistent with theory and social psychology literature that do not place the two constructs together. Tavis and Aronson (2007) provide an intriguing explanation for the relation between attitude, rationalization and behavior. Using cognitive dissonance theory as the underlying theory, they describe a “pyramid of choice” when making decisions. Applied to misreporting, their story goes as follows. Two individuals, positioned together at the top point of a pyramid, believe that misreporting is wrong. Both are tempted to misreport. One decides to misreport while the other does not. The misreporter rationalizes her behavior. Over time, her rationalizations morph into a changed attitude toward misreporting – that misreporting is not so wrong. She continues to misreport while her attitude that her behavior is acceptable strengthens. For the honest reporter, the act of reporting honestly when tempted actually strengthened his attitude that misreporting is wrong. The two individuals end up on opposite sides at the bottom of the pyramid; where they once shared a similar attitude, they now hold significantly different attitudes toward misreporting. This suggests that attitude and rationalization are not correlated at the time of the first decision; but over time, behavior and rationalization serve to alter and/or strengthen one's attitude.

The discussion above, along with my findings, suggest that the better predictor of misreporting is character, not attitude. Character – specifically Machiavellianism – is more concerning because my findings suggest that higher Machs carry a lower emotional burden from misreporting. However, from a practical standpoint, it is difficult to require individuals to complete psychological surveys.<sup>15</sup> In that case, rationalization may be the first and better “psychological red flag” to be observed as a detection device, followed by attitude and then only over time. Finally, if attitude and rationalization are correlated as posited by Tavis and Aronson (2007), then it is even more important to consider fraud prevention methods because once an individual commits fraud, s/he is unlikely to stop. If we could create a setting that significantly increases an individual's anticipated negative affect from misreporting, or effectively impede rationalization *ex ante*, it might prevent some individuals from misreporting in the first place.

### Conclusion, limitations and future research

Using an experiment in which participants were provided the opportunity to misreport the results of their

<sup>15</sup> Some argue that forcing individuals to complete a psychological survey is an invasion of privacy. Additionally, one should not jump to the conclusion that a high Mach will necessarily commit fraud in every situation.



**Table 6**

Analysis of association between predisposition and negative affect.

Variable	Predicted relation	Standardized coefficient	t-statistic	Significance (one-tailed)
<i>Panel A: Regression of discomfort on misreporting, attitude and Machiavellianism</i>				
$DIS = \beta_0 + \beta_1 MISAMT + \beta_2 ATT + \beta_3 MACH + \beta_4 (MISAMT * ATT) + \beta_5 (MISAMT * MACH) + \beta_6 EARNED + \varepsilon$				
Intercept	?		5.519	<b>0.000</b>
MISAMT	+	0.406	5.715	<b>0.000</b>
ATT	?	0.060	0.778	0.218
MACH	?	−0.106	−1.406	<b>0.081</b>
MISAMT * ATT	?	0.060	0.788	0.216
MISAMT * MACH	?	−0.078	−1.045	0.149
EARNED	?	−0.040	−0.590	0.278
<i>Panel B: Regression of guilt on misreporting, attitude and Machiavellianism</i>				
$GUILT = \beta_0 + \beta_1 MISAMT + \beta_2 ATT + \beta_3 MACH + \beta_4 (MISAMT * ATT) + \beta_5 (MISAMT * MACH) + \beta_6 EARNED + \varepsilon$				
Intercept	?		7.807	<b>0.000</b>
MISAMT	+	0.484	7.081	<b>0.000</b>
ATT	?	0.052	0.699	0.243
MACH	?	−0.054	−0.749	0.228
MISAMT * ATT	?	0.028	0.375	0.354
MISAMT * MACH	?	−0.145	−2.017	<b>0.022</b>
EARNED	?	−0.051	−0.792	0.215

Adjusted  $R^2 = 0.225$   $F = 10.883$  (significant 0.000) Number of observations: 205.Adjusted  $R^2 = 0.164$   $F = 7.225$  (significant 0.000) Number of observations: 206.

Significance indicators:

Bold = significant at 0.05 level (one-tailed); Bold italics = significant at 0.10 level.

Variable definitions:

DIS = difference between the sum of the six psychological discomfort measures at time two (immediately after reporting) and at time one (before the experiment begins).

GUILT = difference between the sum of six psychological guilt measures at time two and at time one.

MISAMT = reported income minus earned income; the amount by which a participant misreported.

ATT = measure of attitude toward misreporting, using a 7-point Likert scale. The range is from 10 to 70. A score of 40 is neutral while &gt;40 indicates an attitude favoring misreporting.

MACH = score on the Machiavellian instrument, using a 7-point Likert scale. The range is from 20 to 140. A score above 80 indicates high Mach.

EARNED = the amount the participant actually earned on the quiz, based on answers to the quiz questions.

own performance for financial gain (motive), I examined how they felt after making their reporting decision, whether and how they rationalized their behavior, and whether and how two predispositions are associated with rationalization and negative affect. I found that misreporting participants use rationalization quite easily, even when there are no penalties from misreporting, and many creatively use other rationalizations when some types of rationalizations are obstructed. More disturbing are two findings with regard to predispositions. First, individuals with an attitude favoring misreporting, or higher Machiavellians, are not only more likely to misreport in the presence of opportunity and motive, but by higher amounts. Second, higher Machiavellians are more likely to misreport and experience a lower emotional burden from misreporting. Auditors and those charged with governance should especially be aware of Machiavellian behavior because a high Mach is more likely to misreport without any discernible attitude and no uptick in rationalization.

Even though attitude and rationalization constitute one side of the fraud triangle, this paper provides evidence that they are different constructs with little direct association. Attitude and character (Machiavellianism) predict misreporting while rationalization is a consequence of misreporting.

### Limitations

I acknowledge three limitations of this experiment. First, results may not generalize to the intended population or

setting. There may be contextual elements of the corporate reporting environment not captured in my experiment. Second, there are conflicting arguments over whether an experiment like this contains a demand effect. Some may argue that the affect measures and concentrated manipulation level in this experiment caused a demand effect. Others argue that demand effect is an overused and often unfounded argument (Schepanski, Tubbs, & Grimlund, 1992). In either case, I took precautions in designing the experiment. I followed prior research in administering the affect measures; a balance of “good” and “bad” affect items were provided and in randomized order. The concentrated manipulation level was delivered through the computer system, not by me personally. I conducted all experimental sessions while maintaining a neutral expression, careful not to provide clues as to my expectations. I also analyzed answers to “Why did you report more than you earned?” that might indicate a demand effect and found none. Finally, it is not known whether an individual thinks of a rationalization before or after misreporting. I intentionally measured rationalization after reporting for two reasons. First, observing reporting behavior and measuring negative affect are important elements of the research design. Second, asking for a rationalization before a behavior is likely to alter the subsequent behavior.

### Future research

While it seems we understand how opportunity and motivation predict misreporting, more research is needed

to better understand attitude and rationalization. The fraud triangle is too broad and ill-defined in this regard. For example, what other predispositions – whether attitudes or character traits – are predictive of misreporting? What associations, if any, do these predispositions have with negative affect or rationalization? This paper is the first, to my knowledge, that attempts to understand the association between these phenomena. Perhaps it would be useful to examine attitudes toward the use of rationalization, or an individual's “propensity to rationalize,” rather than attitudes toward misreporting behavior. What situational factors impact an individual's attitude or propensity to rationalize? In what additional ways are rationalizations different from justifications used in an accountability setting?

One important situational factor that was not addressed in this paper is punishment for misreporting. I intentionally ignored punishment in my study in order to avoid confounding variables (Peecher & Solomon, 2001; Swieringa & Weick, 1982) and provide a strong test of rationalization, predisposition and negative affect. Nevertheless, these variables may interact in different ways when the decision maker is aware of severe punishment for misreporting. This study can be extended by adding punishment to those who misreport.

My finding of significant negative affect among misreporters provides research opportunities in fraud prevention. Because individuals do not like to experience negative affect and seek to avoid it (Bandura, 1991; Festinger, 1957), affect-based interventions may deter individuals from misreporting. According to literature in affective forecasting, individuals often base their decisions and behaviors on their predictions of their own emotional reactions (Gilbert & Ebert, 2002; Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998). Put another way, “when faced with a prospective choice, people will be motivated to avoid dissonance anticipated as a consequence of making a decision” (Harmon-Jones & Mills, 1999, p. 32). By making salient the expected negative affect one will experience as a result of misreporting (Zeelenberg, 1999) we might actually sway individuals from misreporting when they are otherwise tempted. Some evidence (Dillard, Fagerlin, Cin, Zikmund-Fisher, & Ubel, 2010) along with my finding of significantly less misreporting in the concentrated manipulation provides support that affect-based interventions would be successful.

Finally, more research could focus on Machiavellianism and its association with different types of fraud and negative affect. Because high Machs do not experience negative affect the same way others do, the intervention discussed above might not succeed with high Machs. They may be more likely to respond to increased probability of detection and greater punishment, consistent with economic theory.

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## Appendix A

### Attitude survey

Circle your **level of agreement** with each of the following scenarios, using Fig. A.1.

### Machiavellian instrument

Describe your **level of agreement** with each of the statements below by circling your response using Fig. A.2.

## Appendix B. Second set of instructions to participants (manipulation only; administered immediately after the accounting quiz, in writing and verbally)

For this part of the exercise, you will first be assigned one of two roles, reporter or reviewer. There will be six or seven reporters and one reviewer in this group. The reporter's job is to report his/her income to the reviewer and to me. The reviewer's job is to decide whether each reporter is reporting an accurate income. All interactions will be identified by assigned number, not by name.

After learning which role you will play, the computer will report to you, privately, the income you earned from the accounting quiz, based on your answers and draws from the corresponding income lotteries. Each reporter will then report an income to the reviewer and to me. Once all reporters have completed this step, the reviewer receives each reporter's reported income, by identification number. Following is an example of what the reviewer will see:

The “Reviewer's Earned Income” represents the income the reviewer actually earned from the quiz. The “Reported Income” is what each reporter reported as his/her income. The reviewer must choose whether s/he thinks each reporter's reported income is accurate by choosing A for accurate or N for not accurate.

### Payments to participants

**If you play the role of reporter**, I will pay you the income you report. The computer will accept any number

### Attitude Survey

Circle your **level of agreement** with each of the following scenarios, using the following scale:

	1	2	3	4	5	6	7
	Strongly disagree	Somewhat disagree	Slightly disagree	No opinion	Slightly agree	Somewhat agree	Strongly agree
1) I have been tempted to overstate my credentials on college applications.	1	2	3	4	5	6	7
2) It is late Friday afternoon at work and I have plans for the evening. At the last minute, my boss asks me to carefully read a document and provide him with comments before the end of the day. I would consider reading it briefly, but telling him I read it carefully, so I can leave work on time.	1	2	3	4	5	6	7
3) I am a member of a group that works with underprivileged children. Though I don't participate in this effort, I might say that I work with underprivileged children.	1	2	3	4	5	6	7
4) My boss at a CPA firm asks me how I performed on a recent portion of the CPA exam, which I failed. I would consider telling her I passed.	1	2	3	4	5	6	7
5) A corporate recruiter asks me how well I performed in a particular class. Though I didn't do well in the class, I am <u>Un</u> likely to tell him that.	1	2	3	4	5	6	7
6) I am being interviewed to appear on a game show, and am asked whether I completed college. Even though I didn't, due to unfortunate circumstances, I might say I did.	1	2	3	4	5	6	7
7) My CPA firm has been sued by an audit client, and I have to testify in court because I worked on the audit. Though I know I didn't complete all the required audit procedures, I would be tempted to testify that I <u>U</u> did but failed to document them.	1	2	3	4	5	6	7
8) My company is competing for a prized client, who asks me about our quality ratings vs. our competitors. I am likely to tell the client that my company is consistently rated higher even if I know we're not.	1	2	3	4	5	6	7
9) A classmate asks me how I did in a class he is considering taking. I would be tempted to tell him I did well even if I didn't.	1	2	3	4	5	6	7
10) I would consider overstating my GPA to enhance my chances of being accepted into a prestigious organization on campus.	1	2	3	4	5	6	7

Fig. A.1. Attitude survey.

Reporter #	1	2	3	4	5	6	7
Reported income	\$12.97	\$26.15	\$40.00	\$25.95	\$0	\$25.98	\$32.57
Accurate or not?	A N	A N	A N	A N	A N	A N	A N
Reviewer's earned income: \$23.24							

within the range of possible incomes, between 0 and \$40.00 (a negative income equates to zero dollars).

**If you play the role of reviewer**, you will start with the actual income you earned from the quiz. From there, your payment is either increased or decreased depending upon your decisions regarding the accuracy of each reporter's reported income. The table below specifies how your payment is impacted:

First, let's examine the table by reading across the rows at the decision choices for the reviewer. What happens if the reviewer decides that a reporter's reported income is

**accurate?** If that reporter's reported income is, in fact accurate, the reviewer's payment is increased by \$1.00. However, if the reported income is not accurate, the reviewer's payment is *decreased* by \$5.00. What happens if the reviewer decides that a reporter's reported income is **not accurate?** If the reported income is actually accurate, the reviewer's payment remains unchanged. However, if the reviewer's decision that it is not accurate is correct, then the reviewer's payment is *decreased* by \$3.00.

		Is reporter's reported income accurate?	
		Accurate (A)	Not accurate (N)
Reviewer's decision regarding that reporter	Accurate (A)	+\$1.00	–\$5.00
	Not accurate (N)	0	–\$3.00

### Machiavellian Instrument

Describe your **level of agreement** with each of the statements below by circling your response using the following scale:

	1	2	3	4	5	6	7
	Strongly disagree	Somewhat disagree	Slightly disagree	No opinion	Slightly agree	Somewhat agree	Strongly agree
1. Never tell anyone the real reason you did something unless it is useful to do so.	1	2	3	4	5	6	7
2. The best way to handle people is to tell them what they want to hear.	1	2	3	4	5	6	7
3. One should take action only when sure it is morally right.	1	2	3	4	5	6	7
4. Most people are basically good and kind.	1	2	3	4	5	6	7
5. It is safest to assume that all people have a vicious streak and it will come out when they are given a chance.	1	2	3	4	5	6	7
6. Honesty is the best policy in all cases.	1	2	3	4	5	6	7
7. There is no excuse for lying to someone else.	1	2	3	4	5	6	7
8. It is hard to get ahead without cutting corners here and there.	1	2	3	4	5	6	7
9. All in all, it is better to be humble and honest than important and dishonest.	1	2	3	4	5	6	7
10. When you ask someone to do something for you, it is best to give the real reasons for wanting it rather than giving reasons which might carry more weight.	1	2	3	4	5	6	7
11. Most people who get ahead in the world lead clean, moral lives.	1	2	3	4	5	6	7
12. Anyone who completely trusts anyone else is asking for trouble.	1	2	3	4	5	6	7
13. The biggest difference between most criminals and other people is that criminals are stupid enough to get caught.	1	2	3	4	5	6	7
14. Most people are brave.	1	2	3	4	5	6	7
15. It is wise to flatter important people.	1	2	3	4	5	6	7
16. It is possible to be good in all respects.	1	2	3	4	5	6	7
17. Barnum was very wrong when he said there's a sucker born every minute.	1	2	3	4	5	6	7
18. Generally speaking, people won't work hard unless they're forced to do so.	1	2	3	4	5	6	7
19. People suffering from incurable diseases should have the choice of being put painlessly to death.	1	2	3	4	5	6	7
20. Most people forget more easily the death of a parent than the loss of their property.	1	2	3	4	5	6	7

Fig. A.2. Machiavellian instrument.

Now, let's examine the table from a different perspective by reading down the columns at the reporter's reporting decisions. If a reporter reports an accurate income, the reviewer's payment might increase by \$1.00 or remain unchanged. However, if a reporter reports an inaccurate income, the reviewer's payment is decreased no matter what s/he decides. The reviewer's payment will either decrease by \$5.00 or by \$3.00, depending upon his/her accuracy decision.

Using the same example, let's say that the reviewer made his/her accuracy decisions. The table below provides an example of the payment calculation:

Reporter #	1	2	3	4	5	6	7
Reported income	\$12.97	\$26.15	\$40.00	\$25.95	\$0	\$25.98	\$32.57
Reviewer's decision	N	A	N	A	A	A	N
Is it accurate?	A	N	N	N	A	N	N
Payment change	0	–\$5.00	–\$3.00	–\$5.00	+\$2.00	–\$5.00	–\$3.00

The “Reviewer's Decision” is the accuracy decision made by the reviewer for each reporter. The “Is it Accurate?” row shows whether or not the reported income was, in fact, accurate or not. In this example, the reviewer was correct for Reporters 3, 5, and 7, but was incorrect for Reporters 1, 2, 4, and 6. The “Payment Change” row shows the increase or decrease to the reviewer's final payment. The payment calculation goes as follows:

- Earned income of \$23.24 – 5.00 – 3.00 – 5.00 + 2.00 – 5.00 – 3.00 = **\$4.24**



In this case, the reviewer receives a payment of \$4.24. If the payment is negative, the reviewer receives no money.

*In summary, if any reporter reports an incorrect income (an income that is different than his/her actual income earned from the quiz), the reviewer is financially hurt by it.* The reviewer can minimize the financial hurt by choosing N (not accurate) for those reporters. However, if any reporter reports accurately, the reviewer has the opportunity to increase his/her payment by choosing A (accurate) for those reporters.

### Special note

In this experiment, the role of **reviewer** will be played by \_\_\_\_\_, who is assisting me with this experiment. This student is working his/her way through school with the help of financial aid. In return for his/her assistance, I will pay him/her according to the rules I just described above.

The role of **reporter** will be played by everyone else in this room.

Now, please turn back to the same computer and hit enter to continue. Follow the instructions and answer the questions as they appear on the screen. You may keep these instructions for reference. **Please remember; no talking.**

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