

**Beliefs about Accountants' Risk Tendencies
and Their Effect on the Integration of Accountants' Advice
Regarding Expenditure Decisions**

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Abstract

We investigate whether stereotypes of accountants' risk preferences influence how managers integrate accountants' advice into their decisions. One key role of accountants is to provide advice that facilitates business managers' decision making. Standards of accounting call for accountants to provide objective advice, and accountants believe their role is to provide objective advice. However, stereotypes of accountants as risk averse can lead managers to treat accountants' advice as not objective and, thus, lead to biased integration of accountants' advice into managers' decisions. The results of our three experiments indicate that people believe accountants are more risk averse than general business people. This belief leads to expectations that accountants are more likely to recommend reducing rather than increasing expenditures when risk is present. As a result, decision makers integrate less (more) of accountants' advice when accountants recommend decreasing (increasing) expenditures. This is the first study to demonstrate that a commonly held belief about accountants affects how decision makers respond to information accountants provide. Accountants who realize this can take steps to ensure unbiased integration of their advice into managers' decisions.

Keywords: Advice, Decision Making, Objective, Risk

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I. INTRODUCTION

This paper examines whether stereotypes of accountants' risk preferences influence managers' integration of the information accountants provide. We investigate this through three questions. First, do people believe that accountants, as a group, are more risk-averse than general business people? Next, does this belief lead to expectations regarding the advice accountants provide? Finally, is the integration of the accountant's advice influenced by these *a priori* expectations?

The role of management accountants has shifted toward strategic planning and internal consulting over the past two decades (Russell et al. 1999). Management has turned to accountants for decision-making information because management is "starved for unbiased information" (Nadler 2005, 70). Accountants have an obligation to provide unbiased information. The AICPA's *Code of Professional Conduct* states, "...a member shall maintain objectivity..." This standard not only applies to CPAs maintaining independence, but also implies that accountants are to present information without bias. The Institute of Management Accountants states in its *Statement of Ethical Professional Practice* that "Each member has a responsibility to communicate information fairly and objectively." These standards establish that accountants are to provide objective information. As one accountant said, "I...enjoy...being respected for my objectivity." (Craig 1993, 20) In short, accountants are instructed to provide and take pride in providing objective information for managerial decision making.

Accountants provide the information, but managers determine how to integrate this information into decisions. A variety of factors (e.g., perceived expertise of the advisor, trust in the advisor, and quality of previous advice) influence this integration (Van Swol and Snizek 2005). One previously unstudied factor is the consistency of accountants' advice with

management's *a priori* expectations. In general, positions consistent with *a priori* expectations are integrated less than positions that are inconsistent with *a priori* expectations (Eagly et al. 1978). Stereotypes of accountants are prevalent in society (DeCoster and Rhode 1971; Beard 1994; Bougen 1994; Dimnik and Felton 2006). If stereotypes of accountants cause managers to have *a priori* expectations of the advice accountants will provide then managers may bias their integration of the advice accountants intend as objective.

We expect that people stereotype accountants as more risk averse than general business people, and, thus, expect accountants to make different recommendations from general business people when risk is present. People will consider accountants more (less) likely to advise a decrease (increase) in expenditures than general business people. These expectancy differences will lead to people weighting accountants' advice less when accountants advise decreasing expenditures than when accountants advise increasing expenditures.

We conduct three laboratory experiments. In the first experiment, participants rate the likelihood that accountants and general business people engage in various activities. In the second experiment, participants rate the likelihood that advice recommending increases or decreases of expenditures is attributable to accountants vs. general business people in different risk environments. In the third experiment, participants act as committee members responsible for determining the spending on a project in each of four work periods. We manipulate the risk of the project (high or low), the direction of the advice (increase or decrease expenditure) and the advisor (accountant or sales person) across the four work periods.

Our results indicate that people believe that accountants are more risk averse than general business people. As such, accountants are believed to be more likely to recommend a decrease rather than an increase in expenditures when risk is present. This expectation leads decision

makers to integrate less (more) of the accountants' advice to decrease (increase) expenditures into the decision maker's final decision.

This study is the first to consider the behavioral consequences of an accountant stereotype. Prior studies of accountant stereotypes have focused on the existence or accuracy of the stereotypes. This study documents not only the existence of one accounting stereotype (risk aversion), but also the impact of this stereotype on the decision makers' expectancy and resultant integration of the accountants' advice. The results document differential integration of advice due solely to the direction of the advice, overriding accountants' intentions to be objective and belief that they are objective.

The results imply that accountants should consider the consistency of their advice with the existing stereotype of accountants' risk preference before opining. The realization that there is a difference in their persuasive influence based solely on the direction of the advice suggests accountants need to take actions to correct this bias.

The remainder of this paper is organized into four sections. Sections II, III and IV investigate each of the three research questions separately. Section II answers the question – Do people believe accountants are generally more risk averse than business people as a group? Section III answers the question – Does the belief that accountants are more risk averse influence expectancy regarding the advice an accountant will provide? Section IV answers the question – Is the integration of accountants' advice regarding a decision under uncertainty affected by *a priori* expectancies? Each of these sections presents hypotheses, the method for testing hypotheses and the results related to that question. Section V summarizes and discusses the results as a whole.

II. DO PEOPLE BELIEVE ACCOUNTANTS ARE GENERALLY MORE RISK AVERSE THAN BUSINESS PEOPLE AS A GROUP?

Background and Hypothesis

Prior studies examined how accountants are portrayed in both jokes (Bougen 1994) and movies (Beard 1994; Dimnik and Felton 2006). They reveal the historical development of an accountant stereotype, where characterizing accountants as conservative, disciplined, dull, rigid, self-effacing or unimaginative provides a baseline for comic relief or demonstrating character growth. It has been posited that accountants, fearing that they will be judged humorless, allow these characterizations to continue despite the powerful influence they have on the public perception of accountants and the serious social role they play (Bougen 1994). These perceptions and characterizations endure (Coate et al. 2003; Hunt et al. 2004) despite demonstration that few of these stereotypes represent reality (DeCoster and Rhode 1971).

Craig (1993, 19-20) conducted a panel discussion with CPAs in industry and asked a question which received responses supporting accountants' belief in the public perception that accountants are unimaginative and conservative.

Craig: "Are there any negative consequences of being a CPA?"

Panelist 1: "The narrow image and stereotypes of the CPA are still out there...the world assumes no creativity, it expects a bean counter."

Panelist 2: "Everybody...expects us to take a very narrow, conservative posture on all issues."

Panelist 3: "They expect us to tell them why they can't do something."

Panelist 4: "Often times the role that is expected of us as financial people is that of the 'bad cop.' We're the person to put the brakes on, to contain the marketing people."

Panelist 5: "I've seen the negative stereotypes – you're square, you're boring – but I dismiss this and enjoy the other side of being respected for my objectivity and professionalism."

Seigel (2000) interviewed accountants in 'leading-edge' companies, and while they believe their role in the company is developing into one of 'business partners and trusted advisors', these accountants believe the overall impression of accountants is that they are there to 'police' costs

and procedures. This is supported by Moss' comments in the *European Journal of Marketing* (1986): "(Accountants) tend to place too much emphasis on cost analysis... (and are) concerned with the measurement and evaluation of operations on the basis of short-term costs and profits." (p. 102). As stated in *Accountancy Age* (Rodgers and Longworth 2005, 21)

*For generations, the personalities associated with senior sales and finance roles could hardly have been more diverse. One was seen as a flamboyant deal-maker and people motivator, trusted to develop business relationships and forgiven for having a less-than-perfect focus on administrative niceties. The other **risk-averse** (emphasis added), concerned with mundane tasks such as managing transactions, overseeing compliance and containing costs.*

These observations suggest that people's beliefs that accountants are risk-averse persist, notwithstanding changes in accountants' corporate roles. They also suggest that existing accountant stereotypes result in beliefs that accountants are different from general business people¹, particularly regarding willingness to take risk. We predict that people believe accountants are more risk averse than general business people.

H1: People believe accountants are more risk averse than general business people.

It is reasonable to question whether the belief that accountants are risk averse is in fact due to the reality that they are risk averse. Two studies (Martin and Previts 1982; Helliard et al. 2002) investigate this question and both find few significant differences between accountants' and comparison subjects' risk preferences.

Method

Eighty undergraduate business students participated in a computer-based laboratory experiment. Each of them received course credit for participation. Participants were randomly assigned to one of twelve² presentation order groups.

The experimental procedure consisted of three steps:

1. Screens asked participants to recall, with no prompts, stereotypes that exist regarding four occupational groups: accountants, engineers, general business people and sales/marketing people³. Presentation order was digram balanced (Keppel and Wickens 2004).⁴ This measured participants' knowledge and/or beliefs about occupational stereotypes.
2. Screens asked participants to answer a series of questions (see Table 1) designed to measure risk tendencies across three dimensions (gambling, investment and social) for the typical person in each of four occupational groups: accountants, engineers, general business people and sales/marketing people. This instrument was adapted from Weber, Blais and Betz (2002), and a 5-point Likert scale ranging from 'very likely' to 'very unlikely' measured each response. Presentation order was digram balanced and in a different order from that used in step one. These measures capture participants' beliefs regarding the risk tendencies of occupational groups.
3. The final screens gathered participants' demographic information, thanked them for their time and dismissed them from the experiment.

[Insert Table 1 Approximately Here]

This experiment captures several dependent measures related to risk tendencies of accountants, general business people and sales/marketing people. We measure participants' beliefs regarding accountants' willingness to engage in moderate-risk investments, high-risk investments, social risks and gambles using the mean of participants' responses to questions three, one, five and four, respectively (see Table 1).⁵ The same method determines participants'

beliefs regarding general business people's and sales/marketing people's willingness to engage in gambles, high-risk investments, moderate-risk investments, and social risks.

Results

Hypothesis 1 states that people believe accountants are more risk averse than general business people. H1 would be supported by significant differences between the means of believed risk tendencies for accountants versus general business people and sales/marketing people, where accountants are believed more risk averse. Table 2 documents that the results are consistent with Hypothesis 1. Overall results indicate that participants believe accountants are more risk averse than both general business people (Difference = $-.45, p < .01$) and sales/marketing people (Difference = $-.41, p < .01$). However, general business people were not believed to be different from sales/marketing people (Difference = $.04, p > .50$).

[Insert Table 2 Approximately Here]

It is also interesting to consider participants' responses when asked to recall stereotypes of occupational groups without any prompts. Over 42 percent of participants in this experiment referred to accountants as 'dull,' over 41 percent referred to them as 'smart,' and over 41 percent referred to them as being 'good with numbers.' (Over 83 percent mentioned at least one of these three traits.) In contrast, less than 10 percent of the participants referred to general business people or sales/marketing people as 'dull' or 'good with numbers'. These results are consistent with prior research regarding accountant stereotypes.

The comparisons of participants' beliefs about the risk tendencies of accountants versus those of general business people and sales/marketing people support Hypothesis 1. This indicates that participants believe accountants are more risk averse than general business people. However, holding the stereotype that accountants are risk averse does not guarantee that participants will

expect accountants to provide advice reflecting their believed risk aversion. Standards of conduct and accountants' pride in providing objective advice could nullify this belief when forming expectancies. This leads to the next logical question: does the belief that accountants are more risk averse influence expectancies regarding the advice accountants will provide?

III. DOES THE BELIEF THAT ACCOUNTANTS ARE MORE RISK AVERSE INFLUENCE EXPECTANCIES REGARDING THE ADVICE ACCOUNTANTS WILL PROVIDE?

Background and Hypotheses

It is reasonable that expectations consistent with risk-preference stereotypes develop concerning the recommendations of accountants versus general business people regarding decisions under uncertainty. Spending money on a project with an uncertain outcome requires the assumption of risk. The previous experiment supports that people believe accountants are more risk averse than general business people. Together, these are likely to lead to expectations that accountants and general business people will make different recommendations regarding risky project expenditures. Therefore, we posit that people will expect that accountants are more (less) likely than general business people to recommend decreases (increases) in project expenditures. Furthermore, people will expect that accountants are likely (unlikely) to recommend a decrease (an increase) in expenditures when presented with a risky project.

H2a: People expect that accountants are more (less) likely than general business people to recommend decreases (increases) in project expenditures.

H2b: People expect that accountants are likely (unlikely) to recommend a decrease (an increase) in expenditures when presented with a risky project.

Accountants' professional organizations expect accountants to present information objectively (AICPA code of professional conduct; IMA statement of ethical professional

practice). Accountants take pride in presenting information objectively (Craig 1993). Management appreciates objective information from accountants (Nadler 2005). If all of these parties value objectivity, then no difference in expectancy should exist between accountants' recommendations to increase and decrease expenditures. Therefore, any differences documented in this study should result from the decision makers' risk-preference stereotype of accountants and suggest that decision makers fail to control the stereotype's influence on their judgment.

Method

Eighty-three undergraduate business students participated in a computer-based laboratory experiment. Each of them received course credit for participation. Participants were randomly assigned to one of forty-eight⁶ presentation order groups.

The experimental procedure consisted of two steps:

1. Screens presented three (No, Low and High) risk scenarios (see Table 3) and asked participants to rate the likelihood that each of two statements ('Spend more' and 'Spend less') was attributable to people in each of four occupations: typical accountant, typical engineer, typical business person and typical sales/marketing person.⁷ A 5-point Likert scale ranging from 'very likely' to 'very unlikely' measured each response. Presentation order was digram balanced (Keppel and Wickens 2004).
2. The final screens gathered participants' demographic information, thanked them for their time and dismissed them from the experiment.

[Insert Table 3 Approximately Here]

The experiment collected eighteen dependent measures rating the likelihood that a typical person (three occupational groups) made a statement (two directions) attributed to them in the stated risk scenario (three scenarios).

Results

Hypothesis 2a states that people expect that accountants are more (less) likely than general business people to recommend decreases (increases) in project expenditures. H2a would be supported by significant differences when comparing the participants' mean rating of the likelihood a typical accountant advises 'Spend less' or 'Spend more' to the participants' mean rating of the likelihood a typical business person advises the same. Table 4 documents that results support Hypothesis 2a. Accountants were believed more likely to recommend 'Spend less' than typical business people (Difference = .32, $p < .01$) and typical sales/marketing people (Difference = .51, $p < .01$). In addition, accountants were believed less likely to recommend 'Spend more' than typical business people (Difference = -.56, $p < .01$) and typical sales/marketing people (Difference = -.76, $p < .01$). Typical business people and typical sales/marketing people were not believed to be significantly different from one another ($p = .08$ for 'Spend less' and $p = .11$ for 'Spend more'). Figure 1 illustrates these results graphically.

Hypothesis 2b states that people expect that accountants are likely (unlikely) to recommend a decrease (an increase) in expenditures when presented a risky project. H2b would be supported by the overall mean, excluding the no-risk scenario, of participants' rating the likelihood a typical accountant advises 'Spend less' ('Spend more') being significantly greater (less) than the neutral rating of three. Accountants were believed unlikely to recommend 'Spend more' (Mean = 2.36, $p < .01$) and likely to recommend 'Spend less' (Mean = 3.27, $p < .02$).⁸

[Insert Table 4 Approximately Here]

[Insert Figure 1 Approximately Here]

These results provide support for Hypotheses 2a and 2b, supporting the conclusion that people do utilize their risk-preference stereotypes of accountants to form an expectancy

regarding the advice that accountants will provide concerning a decision to spend money on a risky project. This indicates that people expect accountants to provide advice to decrease project expenditures when risk is present.

To this point, this study establishes that (1) people believe accountants are risk averse and (2) this risk-preference stereotype leads to people's expectancy that accountants will recommend decreases in project expenditures when risk is present. This establishes a link between knowledge of the stereotype and expectancy formation. However, people's knowledge of a stereotype does not guarantee that this stereotype influences their behavior (Devine 1989). People can believe accountants are risk averse and expect them to recommend decreasing expenditures, yet their behaviors in response to accountants can appear to ignore this belief. This leads to the next logical question: is the integration of accountants' advice regarding a decision under uncertainty affected by *a priori* expectancies?

IV. IS THE INTEGRATION OF ACCOUNTANTS' ADVICE REGARDING A DECISION UNDER UNCERTAINTY AFFECTED BY *A PRIORI* EXPECTANCIES?

Background and Hypothesis

Equation (1) illustrates the belief revision model for an estimation task using step-by-step processing (Hogarth and Einhorn 1992). In this model, the person's final belief is the sum of the weighted products of that person's prior opinion and the advice received regarding the decision to be made.

$$Belief_{Final} = ((1 - Weight_{\alpha}) \times Belief_{Prior}) + (Weight_{\alpha} \times Belief_{Advice}) \quad (1)$$

Equation (2) shows the result of solving for $Weight_{\alpha}$. In this model, $Weight_{\alpha}$ equals the percentage of the difference between the person's original belief and the advised amount that is

integrated into their final belief. In other words, $Weight_{\alpha}$ is equal to the percentage of the advice integrated into the person's final decision.

$$Weight_{\alpha} = \frac{Belief_{Final} - Belief_{Prior}}{Belief_{Advice} - Belief_{Prior}} \quad (2)$$

Consistent with attribution theory, the weight is a function of decision makers' evaluation of why an advisor has chosen his current position (Kelley 1967). Decision makers use characteristics (for example, stereotypes) of the advisor to explain why the advisor took a particular position (Eagly et al. 1978). This occurs in two stages as follows: 1) decision makers form an expectancy regarding the advice they will receive, then 2) decision makers evaluate the advisor's position in relation to the previously formed expectancy (Wood and Eagly 1981). When the advisor's position conforms to expectations, decision makers are likely to attribute the advisor's position to personal characteristics (for example, stereotypes) or situational pressures. When the advisor's position is inconsistent with expectations, decision makers are likely to attribute the advisor's position to factual evidence supporting the advisor's position (Wood and Eagly 1981). In the inconsistency case, decision makers reason that the evidence must be strong in order to overcome the advisor's personal characteristics or situational pressures. As a result, the decision makers form the impression that the advisor is unbiased, which increases the integration of the advisor's position (Wood and Eagly 1981).

While infrequently portrayed as part of the management team in movies (Beard 1994), accountants increasingly assume roles as advisor to and participant in management (Russell et al. 1999; Siegel 2000; Pierce and O'Dea 2003; Parry 2005). A number of factors influence the extent to which management integrates the recommendations of advisors into management's decisions. Some of the characterizations of accountants enhance accountants' credibility as advisors (objectivity, intelligence and skill with numbers are all useful in business decision

making). Others, like conservatism and risk aversion, potentially limit the influence of accountants.

Experiment two supports that people expect accountants to recommend decreases in expenditures for risky projects. Therefore, we posit that people weight accountants' advice to decrease expenditures for risky projects less heavily than they weight accountants' advice to increase expenditures.

H3: People place a lower weight in their final decision on accountants' advice to decrease expenditures for risky projects than they do on accountants' advice to increase expenditures.

Notwithstanding the prediction in H3, there are two reasons why participants in this study should not integrate less advice when an accountant advises 'Spend less', as compared to advising 'Spend more'. First, participants do not seek advice or choose an accountant as their advisor in this experiment. The computer presents them with advice and tells them to assume that this advice came from a person on their committee that works as an accountant. Participants have no prior experience with this accountant advisor. This lack of prior experience provides no expectancies regarding the advice the accountant advisor will provide, other than general knowledge of accountants' risk-preference stereotypes. If participants fail to see the computer advisor as a stereotypical accountant, then they will not form an expectancy and they will have no basis for determining the consistency or inconsistency of the advice. This means the direction of the advice provides no indication of the advice bias and cannot result in differences in advice integration. Second, if participants themselves are risk averse, then they should integrate more advice when anyone advises them to 'Spend less' on a risky project, as compared to advising them to 'Spend more' on a risky project.

Method

One hundred sixty-three undergraduate business students participated in a computer-based laboratory experiment, which employed a 2 (advisor) X 2 (advice direction) X 2 (risk environment) mixed factorial design. Participants received course credit for participation, and in each work period, the participant generating the greatest net profit from his or her choice of project expenditure received \$25. We manipulated four of the eight independent variables within participants, such that each participant received advice from both advisors in one advice direction for one risk environment and the other advice direction for the other risk environment. Participants were randomly assigned to one of forty-eight⁹ presentation order groupings.

The experimental procedure consisted of the following steps:

1. Screens described the decision participants would face in each of four work periods. In each work period, participants assumed the role of a committee member. They were responsible for deciding the amount of money to spend on a project. The screen explained the two types of risk they faced in each decision. (See Appendix A for the complete explanation provided to participants.) This established the task and the inherent risk of the projects in each risk environment.
2. The participants were asked seven questions that provided assurance participants understood their responsibilities and the risk inherent in the projects. If participants answered any questions incorrectly, they were required to return to the previous step.
3. In each work period, participants received seven trial opportunities to choose a project expenditure level. In each trial participants received feedback regarding the resulting Project Earnings (Loss). Due to the uncertainty¹⁰ of outcome variation, there was a high probability that the same project expenditure submitted in consecutive

trials resulted in different Project Earnings (Loss) amounts. At the end of the seven trials, the participants were asked to submit a decision for the project expenditure. A screen then asked them how confident they were that their project expenditure would maximize Project Earnings. They received no feedback regarding the actual Project Earnings (Loss) generated by their decision. These trials and the request to submit a decision allowed participants to establish a belief about how much their committee should spend on the project.

4. Based on random assignment, participants were told that a committee member, who worked as an accountant (a salesperson), offered advice recommending that they either decrease or increase their project expenditure by a set percentage (approximately 4.3%). Two forced¹¹ manipulation checks provided assurance that participants were aware what risk environment was present in the work period and the advisor, direction and amount for the recommended change in their project expenditure. A screen then asked the participants to submit a final decision regarding the project expenditure. This step allowed participants to revise their belief about how much their committee should spend on the project and allowed calculation of the weight they placed on the advice received.
5. Once they completed the first work period, participants repeated steps three and four for each of the remaining work periods.
6. The final screens handled the remaining details of the experiment. First, screens reminded participants of the circumstances in each work period and asked them to rate the change in their level of advisor trust (five-point scale from 'large increase' to 'large decrease') and the credibility of the advice they received (five-point scale from

‘very low’ to ‘very high’) for each work period. Second, a screen provided participants with their resulting Project Earnings (Loss) in each of the four work periods. Finally, a screen thanked participants for their time and dismissed them from the experiment. Participants who earned \$25 were later contacted and paid.

The experiment collects one dependent measure related to the integration of advice participants received. The integration of advice received (WEIGHT) in each of the four work periods is determined using the quotient of the change in the participant’s project expenditure (from the participant’s original decision to their final decision) and the advisor’s suggested change in the project expenditure (\pm approximately 4.30% of the participant’s original decision). Simply, this means that WEIGHT is equal to the percentage of the advice integrated into each participant’s final decision. WEIGHT is used as the dependent variable, instead of change in the participant’s project expenditure, because it allows comparison of the dependent measure across all levels of participants’ chosen expenditures in all work periods.

We gather data to control for expected influences on the advisor’s ability to persuade participants to incorporate advice into their final decision. First, the advice can result in both a change in advisor trust level and a judgment of advice credibility that is unassociated with the interaction of the risk-preference stereotype and the direction of the advice. To avoid demand effects, we asked participants to rate the change in their level of advisor trust (five-point scale from ‘large decrease’ to ‘large increase’) and the credibility of the advice they received (five-point scale from ‘very low’ to ‘very high’) for each work period after the completion of all work periods. We include these two measures as a control when comparing WEIGHT between the ‘Spend less’ and ‘Spend more’ conditions and expect a positive correlation between these two measures and WEIGHT (Van Swol and Snizek 2005). Second, the more confident participants

are in their original expenditure decision, the less likely they are to adjust their final expenditure decision. We measure participants' confidence in their original expenditure decision by asking them to rate confidence in their original expenditure decision on a scale from 0-100 immediately after they submit their original decision. We include confidence in their original expenditure decision as a control when comparing WEIGHT between the 'Spend less' and 'Spend more' conditions and expect it to have a negative correlation with WEIGHT.

Results

We test Hypothesis 3 via the main effect of advice direction on WEIGHT in the related ANCOVA, controlling for change in trust level, advice credibility and confidence. Hypothesis 3 would be supported by a significant effect for advice direction. Panels A and B of Table 5 document that the results are consistent with hypothesis 3. Panels A and B of Table 5 show that the mean of WEIGHT for 'Spend less' advice of .45 is significantly less than the mean of WEIGHT for 'Spend more' advice of .54 ($F = 2.93$, $p < .045$ in a one-tailed test). Figure 2 presents this result graphically and illustrates that this spread tends to increase as risk increases, despite the insignificant interaction between advice direction and risk environment. This result includes controls for change in trust level, advice credibility and confidence, which were all significant covariates in the model ($F = 30.51$, $p < .001$; and $F = 17.61$, $p < .001$; $F = 3.99$, $p < .023$; respectively, all in one-tailed tests). Panel C of Table 5 shows that the parameter estimates of change in trust level and advice credibility are positive and the parameter estimate of confidence is negative, as expected. This result supports Hypothesis 3 and supports the idea that people integrate more of accountants' advice into risky project expenditure decisions when accountants advise increasing expenditures.

[Insert Table 5 Approximately Here]

[Insert Figure 2 Approximately Here]

V. SUMMARY AND DISCUSSION

In this paper, we examine risk-preference stereotypes of accountants, advice expectancies resulting from these stereotypes, and the effect these expectancies have on the integration of accountants' advice to decrease and increase expenditures for risky projects. This examination is important because accounting standards and codes stress accountants' objectivity in providing information to decision makers.

The results of this study suggest that decision makers' integration of accountants' objective advice is influenced by decision makers' stereotype-induced, *a priori* expectations. The results are consistent with the hypotheses that people (1) believe accountants and general business people have different risk tendencies, (2) form expectations that accountants are more (less) likely to advise decreases (increases) in expenditures for risky projects, and (3) integrate less (more) of accountants' advice into their decisions regarding risky projects when that advice is to decrease (increase) expenditures. Specifically, decision makers in this experiment adjusted their position significantly less (45 percent) when receiving accountants' advice to decrease expenditures than when receiving accountants' advice to increase expenditures (54 percent).

This study moves beyond the prior research, which investigates stereotypes of accountants and those stereotypes' accuracy. This study demonstrates that a commonly held risk-preference stereotype of accountants has an effect on people's expectancies and their integration of accountants' advice. These results support both the existence of accountants' risk-preference stereotypes and the behavioral influence of those stereotypes in this context. This demonstrates that a stereotype of the accountants' risk-preferences exists and influences accountants' effectiveness as business advisors despite the potential inaccuracy of that stereotype.

Some limitations of the study provide opportunities for future research. First, we propose that risk-preference stereotypes create expectancies allowing decision makers to view advice as consistent or inconsistent. However, we do not explore the influence of interpersonal contact between the decision maker and the advisor on those expectancies. Interpersonal contact with the stereotyped person has been shown to reduce the behavioral influence of the stereotype (Allport 1954; Dovidio et al. 2003). Future research could investigate the effects of interpersonal contact on expectancies and advice integration. Second, this study uses business students as participants. While stereotypes formed prior to beginning one's career are a strong indicator of future stereotypes, it is difficult to determine how work experience affects occupational stereotypes. Future research could investigate the effects of work experience on the stereotypes of accountants. Interestingly, it is not clear whether either experience with the stereotyped group or work experience will mitigate or enhance the stereotype. Most of the examples cited in the development of Hypothesis 1, supporting that the stereotype exists, reference statements and attitudes of practitioners. Finally, the results are limited to the range of advice utilized in this study. The differences in advice integration due to advice direction are likely to decrease as the difference in the advised expenditure and the person's original decision increases.

¹ The preceding quote suggested an expected difference in the risk preferences of accountants and sales people. Other statements implied an expected difference in the risk preferences of accountants and other members of business management. This led us to investigate the participants' beliefs and expectancies for all three groups. A difference between accountants (or sales people) and general business people suggests a stereotype.

² Participants received one of four occupation presentation orders in step one and then one of the three remaining occupation presentation orders in step two.

³ Gathering data on the stereotypes of four groups allowed the study (1) to disguise the focal stereotype and (2) to simplify the process of digram balancing presentation. The data for engineers is not presented because it is not relevant to nor does it influence the hypothesized results.

⁴ Both the treatments and the sequence of treatments were counterbalanced.

⁵Factor analysis with varimax rotation provided information utilized in choosing the risk belief measures. It was necessary to balance maximization of reliability with the restriction that measures were the same across all three occupational groups. Discretion was necessary to determine the number of measures and the items included in those measures. Table 2 presents Cronbach's alphas by occupational group for each risk belief measure.

⁶ There were six different orders for presenting the three levels of risk, four different orders for presenting occupational groups and two different orders for presenting direction.

⁷ Gathering data on the stereotypes of four groups allowed the study (1) to disguise the focal stereotype and (2) to simplify the process of digram balancing presentation. The data for engineers is not presented because it is not relevant to nor does it influence the hypothesized results.

⁸ The same tests yielded no significant differences regarding the likelihood that a typical business person would recommend 'Spend more' (Mean = 2.91) or 'Spend less' (Mean = 2.99).

⁹ There were eight different possibilities for presenting two different advisors with two different directions of advice in two risk environments. The choice in the first work period determined the three other combinations of advisor, direction and risk faced by each participant, which provided six possible orders of presentation over the three remaining work periods.

¹⁰ Participants were not aware of the specific production function they faced in each work period; however, it remained the same within a work period and the trials provided information to aid in determining the maximum. The usefulness of this information varied based on the risk environment. In the low risk environment, the variation around the mean outcome was ± 30 percent of the expenditure. In the high risk environment, the variation around the mean was ± 120 percent of the expenditure. In both risk environments, the outcome varied in each trial and had an equal probability of each value within the risk level's range.

¹¹ Participants were unable to proceed until they answered each question correctly.

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Table 1 – Statements Used in Determining Participants’ Risk Beliefs pertaining to Occupational Groups

<p style="text-align: center;">Moderate-Risk Investment Questions</p> <p>Investing 10% of his or her annual income in a moderate growth mutual fund. (3) Investing 5% of his or her annual income in a conservative stock. (11) Investing 10% of his or her annual income in government bonds (treasury bills). (13)</p> <p style="text-align: center;">High-Risk Investment Questions</p> <p>Investing 5% of his or her annual income in a very speculative stock. (7)</p> <p style="text-align: center;">Social Risk Questions</p> <p>Admitting that his or her tastes are different from those of his or her friends. (1) Disagreeing with his or her father on a major issue. (4) Arguing with a friend about an issue on which he or she has a very different opinion. (6) <i>Approaching his or her boss for a raise. (8)</i> Telling a friend if his or her significant other has made a pass at him or her. (10) <i>Wearing provocative or unconventional clothing on occasion. (12)</i> <i>Taking a job that he or she enjoys over one that is prestigious but less enjoyable. (15)</i> Defending an unpopular issue that he or she believes in at a social occasion. (16)</p> <p style="text-align: center;">Gambling Risk Questions</p> <p>Betting a day's income at the horse races. (2) Betting a day's income at a high stakes poker game. (5) Betting a day's income on the outcome of a sporting event (e.g. football or basketball). (9) Gambling a week's income at a casino. (14)</p>
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Notes:

Exploratory Factor Analysis indicated that the investment questions represented two constructs and the items in *italics* should be excluded from the social risk measure.

The number in parentheses (#) indicates order of presentation within the risk instrument.

Adapted from an instrument developed in Weber, Blais, and Betz (2002).

Table 2 – Comparison of Participants’ Risk Beliefs pertaining to Accountants, General Business People and Sales/Marketing People [N=80]

Risk Measured	Risk Belief of Accountants	Risk Belief of General Business People	Risk Belief of Sales/Marketing People
Panel A: Comparison of Individual Risk Belief Ratings			
For these measures, a higher number indicates greater willingness to take the risk.	Mean (Std. Error) Reliability	Mean (Std. Error) Reliability	Mean (Std. Error) Reliability
Moderate-Risk Investment	4.16 (.081) $\alpha = .74$	3.93 (.071) $\alpha = .69$	3.51 (.072) $\alpha = .65$
High-Risk Investment	3.15 (.151) NA	3.67 (.118) NA	3.54 (.100) NA
Social Risk	2.94 (.084) $\alpha = .79$	3.45 (.075) $\alpha = .70$	3.59 (.072) $\alpha = .64$
Gambling Risk	1.80 (.095) $\alpha = .87$	2.79 (.106) $\alpha = .87$	3.04 (.096) $\alpha = .85$
Panel B: Comparison of Overall Risk Belief Ratings (H1)			
Overall	3.01 (.064)	3.46 (.053)	3.42 (.044)
Pairwise Comparison of Overall Risk Belief using Bonferroni adjustment for multiple comparisons		Difference	<i>p</i> - value
Accountant vs. General Business Person		-.45	< .01
Accountant vs. Sales/Marketing Person		-.41	< .01
General Business Person vs. Sales/Marketing Person		.04	NS

Notes:

The questionnaire described in Table 1 measured beliefs about the four types of risk.

NA – This was a one-item measure resulting in no stated reliability.

NS – The difference is not statistically significant.

Repeated measures ANOVA indicated a significant effect for the focus of the risk belief (three groups, $p < .01$), the type of risk (four types, $p < .01$) and the interaction ($p < .01$). The purpose of this test was to determine if different beliefs existed regarding the willingness of accountants, general business people, and sales/marketing people to take risk; therefore, the analysis further explicates the main effect for focus of the risk belief. The other effects result from differences in the type of risk and are expected based on the factor analysis of the risk beliefs instrument.

Table 3 – Scenarios Used in Determining the Advice Expectancies of Occupational Groups

No Risk Scenario

Place yourself in the role of a business owner. You decide to spend a portion of its available cash to improve profits. Your expected return on this expenditure ranges from \$1.00 to \$1.30 for every \$1.00 spent. You have more cash available, but decide that \$40,000 is the correct amount to spend. Your expected return on this expenditure ranges from \$40,000 to \$52,000, with net profit change ranging between \$0 and an increase of \$12,000.

Low Risk Scenario

Place yourself in the role of a business owner. You decide to spend a portion of its available cash to improve profits. Your expected return on this expenditure ranges from \$0.80 to \$1.50 for every \$1.00 spent. You have more cash available, but decide that \$40,000 is the correct amount to spend. Your expected return on this expenditure ranges from \$32,000 to \$60,000, with net profit change ranging between a decrease of \$8,000 and an increase of \$20,000.

High Risk Scenario

Place yourself in the role of a business owner. You decide to spend a portion of its available cash to improve profits. Your expected return on this expenditure ranges from \$0.55 to \$1.75 for every \$1.00 spent. You have more cash available, but decide that \$40,000 is the correct amount to spend. Your expected return on this expenditure ranges from \$22,000 to \$70,000, with net profit change ranging between a decrease of \$18,000 and an increase of \$30,000.

Table 4 – Comparison of Expectancies for Advice Statements [N=83]

Statement	Likelihood as Advice from a Typical Accountant	Likelihood as Advice from a Typical Business Person	Likelihood as Advice from a Typical Sales and Marketing Person
Panel A: Comparison of Individual Statement Likelihood Ratings			
	Mean (Std. Error)	Mean (Std. Error)	Mean (Std. Error)
‘Spend less’ in a No Risk Environment	2.34 (.137)	1.94 (.114)	1.94 (.118)
‘Spend less’ in a Low Risk Environment	3.01 (.134)	2.77 (.112)	2.64 (.109)
‘Spend less’ in a High Risk Environment	3.53 (.130)	3.22 (.128)	2.77 (.122)
‘Spend more’ in a No Risk Environment	3.39 (.147)	3.99 (.122)	4.04 (.116)
‘Spend more’ in a Low Risk Environment	2.54 (.129)	3.02 (.124)	3.28 (.119)
‘Spend more’ in a High Risk Environment	2.19 (.123)	2.80 (.135)	3.10 (.130)
Panel B: Comparison of Overall Statement Likelihood Ratings (H2a)			
Overall for ‘Spend less’	2.96 (.096)	2.64 (.080)	2.45 (.082)
Pairwise Comparison of Overall Statement Likelihood for ‘Spend less’ using Bonferroni adjustment for multiple comparisons		Difference	<i>p</i> - value
Accountant vs. Business Person		.32	< .01
Accountant vs. Sales/Marketing Person		.51	< .01
Business Person vs. Sales/Marketing Person		.19	.08
Overall for ‘Spend more’	2.71 (.093)	3.27 (.088)	3.47 (.081)
Pairwise Comparison of Overall Statement Likelihood for ‘Spend more’ using Bonferroni adjustment for multiple comparisons		Difference	<i>p</i> - value
Accountant vs. Business Person		-.56	< .01
Accountant vs. Sales/ Marketing Person		-.76	< .01
Business Person vs. Sales/Marketing Person		-.20	.11

Notes:

The scenarios described in Table 3 represent the three risk environments.

A repeated measures ANOVA calculated for each direction indicated a significant effect for the advisor (three groups, $p < .01$) in both conditions, the level of risk (three levels, $p < .01$) in both conditions and the interaction ($p < .01$) in the ‘Spend less’ condition. The purpose of this test was to determine if different expectations existed regarding the likelihood of accountants, general business people, and sales/marketing people to offer advice; therefore, the analysis further explicates the main effect for advisor. The other effects result from expected differences regarding how people respond to risk and are not the focus of this study.

Table 5 – Comparison of Adjustment Weights for Advice (H3)

Panel A: Descriptive Statistics

Dependent Variable: WEIGHT

Direction of Advice	Mean	Std. Deviation	N
'Spend Less'	.4535	.4507	160
'Spend More'	.5401	.4476	161

Panel B: Tests of Within-Participants Effects

Dependent Variable: WEIGHT

Source of Variation	Num DF	Den DF	F	One-tailed Significance
Advice Direction <i>w/o Covariates</i>	1 <i>1</i>	148 <i>151</i>	2.93 <i>3.53</i>	.045 <i>.031</i>
Change in Level of Advisor Trust	1	255	30.51	<.001
Credibility of Advice	1	293	17.61	<.001
Confidence in Decision Pre-Advice	1	294	3.99	.023

Panel C: Parameter Estimates

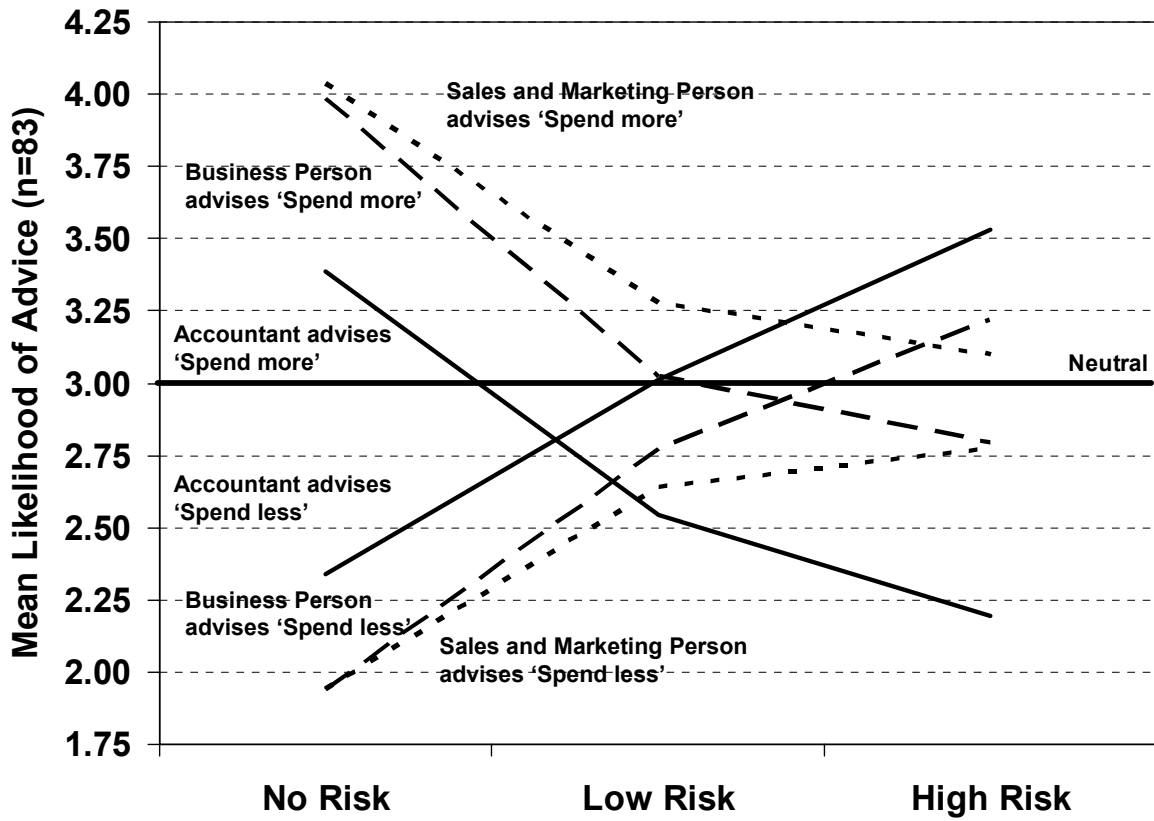
Dependent Variable: WEIGHT

Parameter	B	Std. Error	t	Significance
Intercept <i>w/o Covariates</i>	-.3605 <i>.5380</i>	.1374 <i>.0368</i>	-2.62 <i>14.63</i>	.0091 <i><.0001</i>
Advice Direction <i>w/o Covariates</i>	.0657 <i>.0826</i>	.0384 <i>.0439</i>	1.71 <i>1.88</i>	
Change in Trust	.1848	.0335	5.52	
Advice Credibility	.1288	.0308	4.20	
Pre-Advice Confidence	-.0023	.0011	-2.00	

WEIGHT = (Final Decision – Pre-advice Decision) / (Advised Decision – Pre-advice Decision)

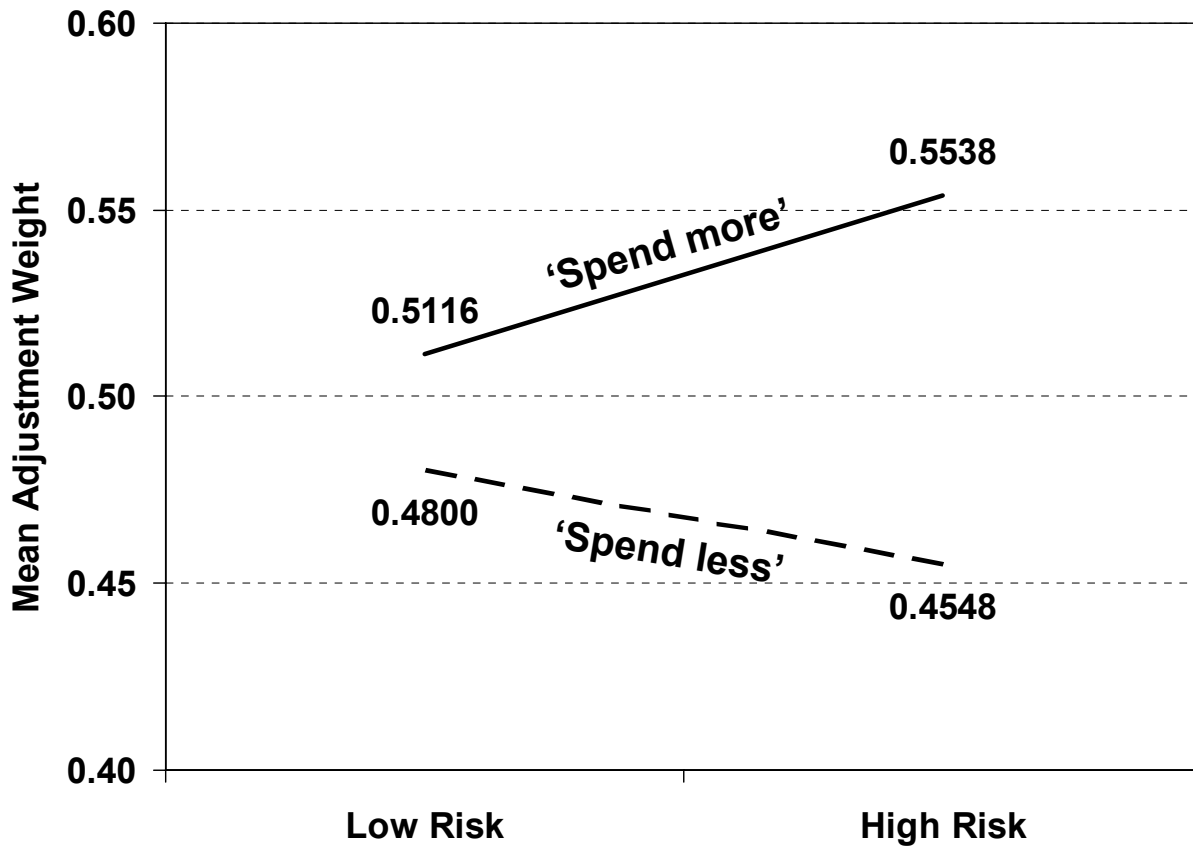
Note: The model was tested with Work Period (4) as a covariate. Work Period was non-significant in the model with the other covariates; however, as the only covariate it was significant. Investigation of the means for Advice Direction by Work Period revealed fluctuations in WEIGHT; however, in each Work Period, the WEIGHT for 'Spend more' was greater than the WEIGHT for 'Spend less' (minimum difference = .0646).

Figure 1 – Graph of Statement Likelihood by Risk Scenario for Accountants, General Business People and Sales/Marketing People



Participants rated the likelihood that the identified advisor would give the specified advice. Ratings were on a scale from one to five, with five representing the belief that the identified advisor was very likely to give the advice.

Figure 2 –Adjustment Weights for Accountants’ Advice by Risk Level



Means of adjustment weights presented are adjusted for the covariates at the following values:

Change in Level of Advisor Trust = 3.33; Credibility of Advice = 3.40; Confidence in Decision Pre-Advice = 69.35

The adjustment weight represents the portion of accountant advisors’ advice integrated into participants’ final decisions regarding the expenditure. Overall, participants integrated significantly ($p < .05$, one-tailed) more when accountants advised ‘Spend more’ than when accountants advised ‘Spend less’. While the interaction of advice direction and risk level is not significant ($p > .50$), there is an indication that as risk increases the difference in the weighting of accountants’ directional advice also increases.

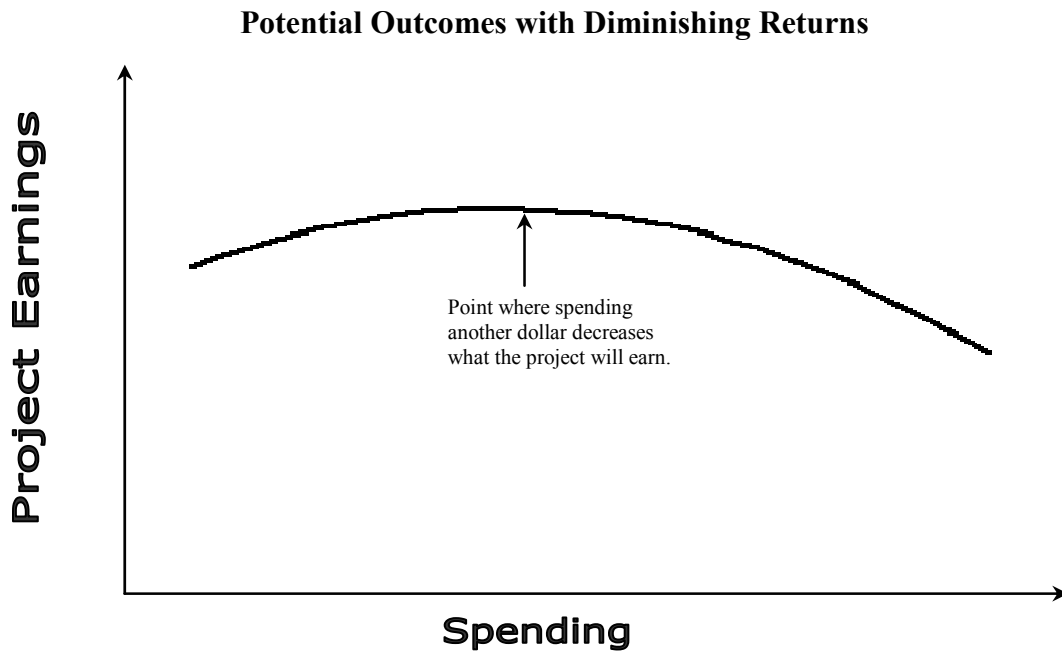
APPENDIX A

Section Two

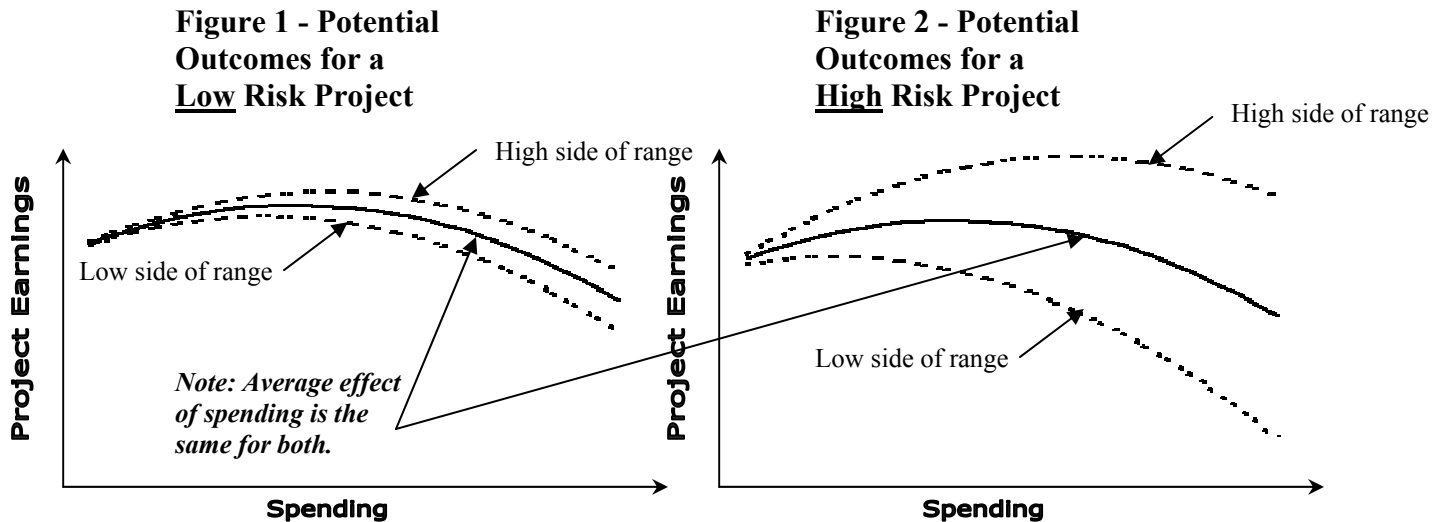
General instructions:

You are asked to place yourself into a role as a committee member. The committee has several other members. In each of four separate work periods, the committee must make a decision regarding the amount of money to spend on a project. While the other committee members may choose to offer advice regarding the decision, you are responsible for the final decision regarding the amount to spend on the project.

There are two important areas of uncertainty associated with the decision. First, the decision happens within an environment of diminishing returns. Initially each dollar spent on the project increases what the project will earn (including the effect of spending the dollar); however, there is a point where spending another dollar actually decreases what the project will earn. The following figure illustrates this relationship:



The second uncertainty is that projects are either high or low risk with regard to what the project will earn. A low risk project has less potential variation in the outcome (see Figure 1 – the potential variation is represented by the distance between the two dashed lines), while a high risk project has more potential variation in the outcome (see Figure 2).



Consider a project where what the project earns is maximized on average when \$250,000 is spent. The table below provides data for the project earnings that could occur for both high and low risk projects at several selected points. If you decide to spend \$200,000 in a work period with a low risk project, it will generate somewhere between \$369,560 and \$630,428 (an average of \$499,994) in project earnings. If you decide to spend \$250,000 on the same project, it will generate somewhere between \$361,950 and \$688,035 (an average of \$524,993) in project earnings. This means that spending \$250,000 in this work period places you in a range with the highest expected value for project earnings. Please note that this example is provided only as an illustration and it does not represent the conditions you will experience in the actual work periods. In each work period, you will receive several opportunities to input expenditures and receive feedback in the form of one point in the range of anticipated project earnings. You should use this information and attempt to learn where project earnings are maximized in each work period.

	Low Risk			High Risk		
	Low side	Average	High side	Low side	Average	High side
\$200,000	369,560	499,994	630,428	(21,742)	499,994	1,021,730
\$250,000	361,950	524,993	688,035	(127,178)	524,993	1,177,163
\$300,000	304,340	499,991	695,642	(282,613)	499,991	1,282,595

In summary...

- You are on a committee
- This committee is responsible for making a decision regarding how much to spend on a project
- This decision is made in each of four work periods
- You are responsible for your committee's final decision in each work period
- The projects will all have a point of diminishing returns on spending and they will each have either high or low risk.

Remember there will be four work periods. In each work period:

1. You will receive information indicating that the project is high risk or low risk.
2. You will get seven (7) practice trials in each work period. These practice trials will allow you to acquire information necessary to make a decision. In each practice trial, you will enter a dollar amount for the expenditure and see what future project earnings result. The effect for diminishing returns stays the same within a work period. The effect of risk is randomly determined and varies from trial to trial within the work period. This means your expenditure will generate different project earnings in each trial even when you enter the same expenditure in two or more trials.
3. Once the practice trials are complete, you will receive a request for your decision regarding the amount you want to spend on the project.
4. After making this decision, one (1) of your committee members will offer advice regarding your recommendation. You are to assume that this committee member has the same amount of information that you have regarding the project, no more and no less.
5. After receiving this advice and considering it, you will be asked to submit your final expenditure recommendation.
6. At the end of the experiment, you will answer some questions about your feelings in each of the work periods and see the amount of earnings generated by your decision in each work period. Your goal is to maximize the project earnings. In each of the four work periods, the participant who generates the highest amount of project earnings out of all participants will receive a cash bonus of \$25.