The influence of self-interest and ethical considerations on managers’ evaluation judgments

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Abstract

Recent empirical studies support self-interest as the sole basis for economic decisions (as predicted by agency theory). However, cognitive moral development (CMD) theory suggests that decision makers will allow ethical/moral considerations to constrain their economic behaviour. The purpose of this study is to resolve the essential conflict between the tenets of agency theory and CMD theory. The results of a laboratory experiment suggest that both moral reasoning level and adverse-selection conditions (self-interest) can have a significant effect on managers’ project evaluation decisions. Specifically, managers are likely to continue a project that is expected to be unprofitable only when adverse selection conditions are present and moral reasoning level is low. Thus, agency theory may not be generalizable to accounting-based economic performance. © 1999 Elsevier Science Ltd. All rights reserved.

Research supports the agency theory contention that managers are motivated by self-interests (Harrison & Harrell, 1993; Harrell & Harrison, 1994: subsequently referred to as H&H). The H&H studies have developed an expanded view of rational economic decision-making based on an agency theory framework. This view suggests a conflict of interests arises when individuals are contracted to act in the economic interests of the firm and yet are motivated to reach decisions which maximize their own economic interests. Two conditions are described where a manager might sacrifice the firm’s interest for their personal interests. One of these conditions occurs when a manager’s own economic interests diverge from those of the firm, hence an incentive to shirk (Baiman, 1982). The second condition occurs when a manager possesses relevant information that is not available to others, hence privately-held information.

The results of the H&H studies suggest that project managers experiencing the presence of adverse selection conditions (i.e. possess both an incentive to shirk and privately-held information) are likely to act in their own self-interests by continuing to support (their own prior chosen) projects that are likely to be unprofitable. However, when only one or neither of these two factors is present, the project managers are more likely to discontinue such projects. These findings are consistent with the expanded view of rational decision-making incorporated into agency theory.

However, these studies fail to consider a previously proposed alternative explanation to managers’ economic decision-making. Noreen (1988)
disputes the idea of pure self-interest motivated economic decision-making. Casual observation suggests that while there may be some people who are unreservedly opportunistic, others do constrain their own behaviour out of an ethical sensibility or conscience (Noreen, 1988, p. 359). While the findings of the H&H studies provide significant results, not all subjects’ (i.e. agents’) responses were motivated by self-interests. Agency theory cannot explain why many subjects in the H&H studies were willing to sacrifice their self-interests in order to benefit the interests of their firm (i.e. the principal). A possible explanation for such behaviour may be found by examining the proposition discussed by Noreen. That is, many individuals will constrain their self-interest behaviour due to the influence of ethical considerations. Thus, many individuals will reach decisions that benefit the firm (i.e. the overall good) because they rely on ethical considerations to constrain their behaviour.

The purpose of this study is to provide an improved model of managers’ decision-making behaviour. Accordingly, this paper examines the potential influence of ethical considerations on managers’ economic decisions when the circumstances for adverse selection (do or do not) exist. Specifically, an interaction effect is proposed whereby both ethical considerations and adverse selection conditions affect the economic decision to continue a failing course of action. The remainder of the paper is organized as follows. First, is a discussion of relevant theoretical issues and the development of testable hypotheses. Second, is a description of the experimental design, including the procedures used for the ethical evaluation and the decision-making experiment. This is followed by the data analysis and results of the experiment. Lastly, implications and other concluding remarks are provided.

1. Theoretical issues and hypotheses

1.1. Agency theory

In most organizations, decision-making authority is delegated from higher levels within the firm to lower levels. Contracts are often used to allocate resources and outputs when such a delegation relationship exists (Harris & Raviv, 1978). Agency theory is predicated on viewing the firm as a set or nexus of contracts among factors of production (Alchian & Demsetz, 1972; Jensen & Meckling, 1976; Baiman, 1982), and examines the relationships between principals (e.g. the firm or its senior management) and agents (e.g. project managers). Within the agency theory framework, both the principal and the agent reach decisions that are motivated solely by self-interest (Fama, 1980; Baiman, 1982, 1990; Eisenhardt, 1989; Kanodia et al., 1989). The principal’s interests are assumed to be in accordance with the profit maximization motive of the firm. However, the agent’s self-interest may be either in accordance with, or in conflict with, the overall interests of the firm. When the agent’s interests are in conflict with those of the firm, the agent is said to have an incentive to shirk. Thus, an incentive to shirk motivates the agent to make decisions that conflict with the profit maximization of the firm.

The agency model assumes that in order to act on the incentive to shirk, the agent must have an opportunity to shirk. Availability of information can provide the vehicle for this opportunity. The problem of adverse selection arises when the agent is motivated to misrepresent private information in order to implement a decision that conflicts with the overall interests of the firm. If the firm and the agent have the same availability of information (i.e. information symmetry), then the firm can verify whether the agent’s decisions are in accordance with the firm’s interests. This provides the agent with the opportunity to shirk by making decisions that conflict with the overall interest of the firm. However, when the agent has private information that is not available to the firm (i.e. information asymmetry), the firm can no longer verify that the agent’s decisions are in accordance with the firm’s interests. This provides the agent with the opportunity to shirk by making decisions that conflict with the interests of the firm. When the agent is under conditions of an incentive to shirk and an opportunity to shirk (e.g. private information) the problem of adverse selection can occur. Adverse selection will influence the
agent to act in his/her own self-interest and disregard the interests of the firm.

Harrell and Harrison (1994) found support for the contention that when agents (e.g. project managers) have both an incentive to shirk and privately-held information, they will act in their own self-interest and not maximize the expected profits of the firm. The actions of agents in their self-interest provides an explanation as to why some managers allocate additional resources to a project, even when unfavourable economic prospects indicate the project should be cancelled (e.g. a failing project). Accordingly, the first hypothesis of this study is stated as follows:

**H1. Project managers who experience conditions associated with adverse selection (both an incentive to shirk and possess privately-held information) will exhibit a greater tendency to continue an unprofitable project than project managers that do not experience these conditions.**

This study extends the Harrell and Harrison research in two ways: (1) it expands potential support for the hypothesis by testing it in a modified context (i.e. modified test instrument), and (2) the current study uses subjects that are more appropriate for the required decision-making task. They are more mature and have significantly greater real world business experience (see demographics).

### 1.2. The effects of ethical reasoning

Agency theory assumes that an individual’s actions are endogenously derived and based on well specified preferences and beliefs. When agency theory is applied to an economic setting, the individual’s preferences and beliefs are attributed an extreme and immediate self-interest and selfish character. This assumption has been criticized for its simplicity and narrowness (McKean, 1975; Collard, 1978; Noreen, 1988; Baiman, 1990). It disregards the possibility of an altruistic or unselfish belief system. Moreover, this assumption ignores the possibility that some individuals, for ethical reasons, may not act in such an egoistic manner. Therefore, the assumption implicitly disregards the existence (and possible influence) of the high ethical reasoning individual.

Prior research indicates that ethical and moral reasoning levels have a direct relationship with one’s ethical performance. For example, Ponemon (1992) examined the underreporting of audit time behaviour of auditors from a national public accounting firm. The study reports a significant negative correlation ($p < 0.05$) between DIT P-scores (a measure of moral reasoning level) and the extent of underreported audit time. The results support the contention that auditors at lower levels of moral reasoning underreport audit time more than those at higher moral reasoning levels.

Ponemon (1993) examined the effects of ethical intervention and ethical reasoning on students’ economic decisions in a Prisoners’ Dilemma type economic choice experiment. He established a decision rule based on DIT P-scores to classify each subject as either a freerider or cooperative. The simple decision rule correctly classified 28 of 37 subjects ($p < 0.05$). The study concluded that students’ ethical reasoning may be an important factor in explaining an individual’s payment choice. (Ponemon, 1993, p. 206).

Tsui and Gul (1996) examined the effects of ethical reasoning and locus-of-control on auditors’ ability to resist a client’s request to ignore unrecorded liabilities. The authors found a significant interaction between ethical reasoning and locus-of-control on the auditors’ responses ($p < 0.04$). High ethical reasoning auditors were more likely (than low) to resist management’s pressure, especially for the external locus-of-control auditors.

The studies discussed above provide evidence of a direct relationship between ethical reasoning and performance. They provide evidence that the ethical reasoning of project managers is likely to influence their decisions. That is, many professional decisions are conditioned by one’s beliefs and values. At the lowest level of moral reasoning, individuals make their decisions based on obedience and punishment. They may act in their own self-interest if the probability of detection and punishment are low. However, at higher levels of moral reasoning, individuals will make decisions that are conditioned by their feelings and expectations.
about their relationships with others and/or by their self-chosen ethical principles.

In the context of this study, low moral reasoning level managers should be more likely than high moral reasoning level managers to act in their own self-interests. This will influence them to continue a project, even in the face of probable unfavorable economic prospects. Accordingly, the second hypothesis of this study is stated as follows:

H2. Preference for continuing an unprofitable project will be greater for project managers with a low level of moral reasoning than for project managers with a high level of moral reasoning.

It is likely that the conflicting forces between agency theory influences (e.g. self-interest behaviour) and CMD theory (e.g. moral development) will produce a predictable outcome. That is, moral development is expected to constrain managers’ self-interest decision-making behaviour in the presence of adverse selection conditions (Noreen, 1988; Harrell & Harrison, 1994). This implies an interaction between the two main effects. When conditions for adverse selection are not present (i.e. an incentive and opportunity to shirk), low moral reasoning managers will act to satisfy their own interests, and high moral reasoning managers will constrain their behaviour. But when conditions for adverse selection are not present (i.e. an incentive and opportunity do not arise), the difference between the actions of managers with low moral reasoning and managers with high moral reasoning should not be substantial. Both types of managers’ interests will be aligned with those of the firm.2 Accordingly, the third hypothesis predicts an interaction effect between moral reasoning level and the conditions associated with adverse selection, as follows:

H3. (a) When the conditions for adverse selection are present (i.e. an incentive to shirk and private information exist), project managers with a low level of moral reasoning will have a greater preference for continuing an unprofitable project than project managers with a high level of moral reasoning.

(b) When the conditions for adverse selection are not present (i.e. an incentive to shirk and private information do not exist), there will be no significant difference in the preference for continuing an unprofitable project between project managers with a low level of moral reasoning and project managers with a high level of moral reasoning.

2. Method

A laboratory experiment was conducted to see if moral reasoning has a constraining influence on a project manager’s evaluation decision. A 2x2 experimental design is used to examine this issue. The dependent variable is the subjects’ preference for discontinuing a project (as more fully described below). The following is a description of the subjects and procedures used to collect the experimental data.

2.1. Subjects

The study included a total of 67 participants. Each participant possessed an undergraduate degree and was enrolled in a Master Degree program (MBA or MS-accounting) at a large public university in the Southeast US. Most of the subjects had taken graduate level courses including courses in financial and managerial accounting. The average subject was 27 years of age. Thirty-eight (56.7%) of the subjects were male and 29 (43.3%) were female. Most of the subjects had budgeting experience (an average of 2.5 years), and supervisory experience (an average of 2.7 years). Ninety-one percent of the subjects had professional business experience; the average length of such experience was in excess of 5 years. Additionally, 60% of the subjects had one or more

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2 When adverse selection conditions do not exist (no incentive to shirk and no private information), the actions of high and low moral reasoning will make the decision based on obedience and punishment considerations. They will discontinue a project that is expected to be unprofitable because of the likelihood of detection and punishment. High moral reasoning managers are likely to discontinue the project based on ethical principles.
courses in ethics. The only significant difference in the background experience between males and females was where the males in the sample were found to have greater budgeting experience than the females ($p < 0.04$). The relevant work experience and education of the participants indicate that they were well qualified for the managerial decision-making task that was required of them.

2.2. Procedures

In the experimental task, all subjects were instructed to assume the role of project manager (see Appendix for the two scenarios presented to the subjects). 4 years ago, as project manager, they invested in a project with an estimated 7-year life. At this time they are managing the project and must decide whether the project should be continued or discontinued. The participants were instructed that the actual results of the project were better than expected during the first 4 years (annual cash inflows were originally projected to be $320,000 and actual annual cash inflows were $350,000 for the first 4 years). Unexpected events have caused the projected annual cash inflows to be only $25,000 for the remaining 3 years of the project. The decision at this time is between continuing or discontinuing the project. If the project is discontinued, the cash from the salvage of the project can be used to purchase government bonds yielding 10% annually for the next three years. If the project is continued, the seven-year (entire project life) expected return will be in excess of the minimum acceptance rate for new investments (17.29 versus 16.00%). However, the internal rate of return for the remaining 3 years is projected to be below the minimum acceptance rate ($-2.01$ versus 16.00%). Subjects were instructed to accept the accuracy of all computations.

Suggestions for improving upon prior experimental project evaluation tasks were employed in this study. For example, both retrospective (past-oriented) and prospective (future-oriented) information were provided to the participants (Conlon & Leatherwood, 1989). Concrete, rather than ambiguous, circumstances were presented that included probabilistic information about future performance expectations (Northcraft & Wolf, 1984; Bowen, 1987). Additionally, the opportunity cost of a decision to continue each project was provided (Northcraft & Neale, 1986).

Each subject was randomly assigned to complete one of the two cases. In one version of the case, subjects experienced the two conditions associated with adverse selection: private information, and an incentive to shirk. They were told that (1) the information about the project’s success or failure is not available to others in their firm or industry (private information), and (2) the discontinuance of the project would cause others in the firm and industry to believe the project was a failure. This would damage their reputation as a highly talented manager and probably cause a competing firm to withdraw an offer of a more important position at a higher salary (an incentive to shirk).

In the second version of the case, the subjects did not experience the conditions associated with adverse selection. They were told that (1) the information about the project’s success or failure is available to others in their firm and industry (public information), and (2) the discontinuance of the project would cause others in the firm and industry to believe the project was a failure, but would not damage their well-established reputation (reduced incentive to shirk).

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Males (n = 38)</th>
<th>Females (n = 29)</th>
<th>Total (n = 67)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>27.2</td>
<td>26.5</td>
<td>26.9</td>
</tr>
<tr>
<td>Budgeting experience</td>
<td>2.8</td>
<td>2.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Supervisory experience</td>
<td>2.8</td>
<td>2.5</td>
<td>2.7</td>
</tr>
<tr>
<td>Business experience</td>
<td>4.9</td>
<td>5.2</td>
<td>5.0</td>
</tr>
<tr>
<td>SROM score</td>
<td>366.7</td>
<td>369.1</td>
<td>367.7</td>
</tr>
</tbody>
</table>

3 After completing the assigned version of the case, the subjects received and completed the second version. However, the results from the second case completed by the subjects are not used in the analysis presented here since a demand effect is likely to have influenced the second response.
2.3. Dependent variable

The decision to continue or discontinue the project was indicated on a 10-point Likert type scale (numbered from 1 to 10). The scale end point 1 was labeled Definitely Continue, and the end point 10 was labeled Definitely Discontinue. The subject’s dis/continue indication is used as the dependent variable.

2.4. Independent variables

The two independent variables are: (1) the subject’s moral reasoning level (high or low), and (2) the conditions for adverse selection (present or not present).

Kohlberg (1969) developed a theory of cognitive moral development (CMD theory) based on the assumption that there are cognitive processes involved in moral judgment. He proposed a hierarchical system of six stages in moral development (See Fig. 1).

Specific moral concepts are specified within each stage of development. Kohlberg’s CMD theory has proved to be the most popular and tested theory of moral reasoning, and it is among the most cited works in contemporary behavioural science (Nelson & Obremski, 1990; Kavathatzopoulos, 1991; Trevino, 1992). Further, over 20 years of research has provided considerable support for Kohlberg’s model (Trevino, 1992, p. 446). However, the Kohlberg’s Moral Judgment Interview (MJI), used to score the CMD, requires lengthy interviews with each subject, and training of researchers in conducting the interviews and scoring responses. Subjective interpretation within the interview process may lead to biased results. For these reasons (time, training, and subjectivity) the MJI was not used in the study.4

Gibbs et al. (1984) developed the Sociomoral Reflection Objective Measure (SROM) in response to the difficulties associated with the CMD. The SROM instrument presents dilemmas that have been adapted from Kohlberg’s MJI. The dilemmas are used to assess the justifications for moral decisions. The SROM questionnaire contains 16 multiple-choice arrays where each array-response represents a different CMD stage (see Fig. 1, above).5 The responses are used to calculate a SROM score which ranges from 100 (minimum Stage 1) to 500 (maximum Stage 5). Results, therefore, are expressed in terms of scores and stages.

According to Gibbs et al., the SROM has been validated in a number of ways including test-retest reliability (overall correlation of 0.82, p < 0.001, for three samples over a 2-week period), internal consistency (Cronbach’s alpha of 0.77 and 0.84, p < 0.001, for two samples), and concurrent validity with the MJI (correlation of 0.66, p < 0.001, for a small sample of 23). For the current study, SROM scores were calculated for each participant. Internal consistency (reliability) was measured using Cronbach’s (1951) alpha coefficient. A Cronbach’s alpha of 0.81 was obtained for the SROM measure.

Subjects’ moral reasoning was classified as either high level or low level based on their relative SROM score within the participants of the study.6 Subjects with SROM scores between 264 and 367 [global stages 3(2) to 4(3)] were assigned a relatively low level of moral reasoning, and subjects with SROM scores between 372 and 436 [global stages 4(3) to 4(5)] were assigned a relatively high

4 The Defined Issues Test (DIT:Rest, 1979) is a common measure of moral judgement. The DIT produces a single measure called a P-score which measures the percent of post-conventional responses from a subject. It may be inappropriate to use the DIT P-score as a measure of reasoning and justification in moral judgement because it addresses what people recognize and appreciate in moral arguments rather than what moral arguments they spontaneously produce. The facet of moral judgement assessed by Kohlberg’s test may not be identical with that assessed by the Defining Issues Test (Rest, 1975, p.748). This may explain the low controlled correlations between the MJI and the DIT (Davison & Robbins, 1978; Froming & McColgan, 1979). Although the DIT has been shown to be a highly reliable and valid measure of ethical reasoning, it was not used in this study because it may be of greater interest to have a measure which can be interrupted in light of CMD levels and stages.

5 Each array also includes a pseudo (sophisticated sounding, but meaningless) option. Excessive pseudo-option responses eliminates a subject from eligibility.

6 Separating subjects between relatively high and low levels of moral reasoning in common practice in similar research studies (c.f. Arnold & Ponemon, 1991; Ponemon, 1992, 1995).
3. Data analysis and results

A two-way ANOVA was used to examine H1 through H3. The ANOVA includes the following two factors: (1) an adverse selection condition variable with two levels (present and not present), and (2) a moral reasoning variable with two levels (low and high). The dependent variable is each individual’s project evaluation response. The results of the ANOVA are presented in Table 2.

**Hypothesis 1 (H1)** predicts that the adverse selection conditions will affect a project manager’s project evaluation decision. Table 2 indicates that the level of the adverse selection condition had a statistically significant main effect on the manager’s project evaluations ($p < 0.0001$). As Table 3 indicates, when adverse selection conditions are present (i.e. subjects have an incentive to shirk and possess private information), subjects’ mean evaluation was 4.882, whereas the mean evaluation for subjects when adverse selection conditions were not present was 7.677. This result is consistent with H1, since project managers had a
greater preference for continuing a failing project when conditions for adverse selection exist than when such conditions did not exist.

**Hypothesis 2 (H2)** suggests that moral reasoning level will affect a manager’s project evaluation decision. Table 2 indicates that there is a statistically significant main effect for the level of moral reasoning ($p < 0.0323$). As indicated in Table 3, the mean evaluation for subjects with a low level of moral reasoning is 5.613, and for subjects with a high level of moral reasoning is 6.806. This result is consistent with **H2**, since project managers’ preference for continuing an unprofitable project were greater for managers with low moral reasoning levels than for managers with high moral reasoning levels.

An interaction between moral reasoning levels and adverse selection conditions is predicted by **Hypothesis 3 (H3)**. As indicated in Table 2, this interaction is statistically significant ($p < 0.0166$). A closer look at Table 3 indicates the nature of this interaction. When the conditions for adverse selection are not present (i.e. no private information or incentive to shirk), the difference between the evaluations of high versus low moral reasoning level subjects is only 0.162 (i.e. 7.750–7.588). However, when the conditions for adverse selection are present, the difference between the evaluations of high and low moral reasoning level subjects is 2.772 (i.e. 6.105–3.333). These results are consistent with **H3**, and suggest that ethics constrains self-interest based behaviour.

### 4. Discussion

#### 4.1. Limitations

The findings and implications of this study should be considered within the context of its strengths and limitations. Laboratory experiments have the potential for high internal validity due to the controlled environment within which the decision-making behaviour can be studied. However, such control should lead to caution in generalizing the results to other groups or to other situations. Further, the usual caveats related to controlled experiments apply. For instance, the subjects indicated that their background included substantial managerial, budgeting, and educational experience. Since they were not randomly selected from the population of all managers that make project evaluation decisions, they may not be representative of this population. As with all experiments of this type, the case situations are simplified abstractions of real world situations. Therefore, although care was taken in order to include all necessary and relevant information, the cases remain abstractions.
Despite these limitations, the following discussion is supported by the results of this study.

4.2. Discussion of findings

According to agency theory, self-interest is the basis for managers’ economic decision behaviour. This conflicts with implications from CMD theory that individuals’ decision behaviour is influenced by their level of moral development and ethical principles. This study uses a laboratory experiment to consider this conflict by examining the effect of ethical considerations on decisions reached under conditions of adverse selection (e.g. on managers’ project evaluation decisions).

Three research hypotheses were developed and tested in a laboratory experiment. Adverse selection conditions (an incentive to shirk and private information) were manipulated to test for a main effect on managers’ project evaluation decisions. Moral reasoning level was also employed as an independent variable in an attempt to examine its impact on managers’ project evaluation decisions. Based on the first and second hypotheses, main effects for the adverse selection conditions and moral reasoning level were expected. Further, in conjunction with the third hypothesis, an interaction was predicted between the adverse selection conditions and the manager’s level of moral reasoning.

A statistically significant main effect was found for adverse selection conditions on a manager’s project evaluation decision. This supports H1, and is consistent with agency theory. It suggests that managers are more likely to continue a probable failing project under conditions of adverse selection (an incentive to shirk and private information) than when they are not under such conditions. A statistically significant main effect was found for the manager’s moral reasoning level on his/her project evaluation decision. This supports H2, and suggests that managers are more likely to discontinue probable failing projects when they have a high level of moral reasoning than when they have a low level of moral reasoning.

Further, a statistically significant interaction was found between adverse selection conditions and the manager’s moral reasoning level. This supports H3, and suggests that the results from the first two hypotheses must be interpreted with caution. The significant interaction between adverse selection conditions and a manager’s ethical reasoning level can be interrupted in two different manners, as follows: (1) a manager’s ethical reasoning level has a greater effect on project evaluation decisions under high adverse selection conditions than on decisions under low adverse selection conditions, or (2) adverse selection conditions have a greater impact on the project evaluation decisions of managers with low ethical reasoning than managers with high ethical reasoning levels. As predicted by H3 (and suggested by ethical theory), the adverse selection conditions have the greatest impact on the project evaluation decisions of managers with low ethical reasoning levels. Such managers allowed the presence of agency conditions (i.e. incentive and opportunity to act in their self-interest) to affect their economic decisions. Alternatively, project evaluation decisions of managers with high levels of ethical reasoning were not significantly influenced by the presence of adverse selection conditions. It is interesting to note that managers were more likely to continue than discontinue a failing project only when both the conditions for adverse selection are present, and the moral reasoning level is low. This can be seen from Table 3, where the only cell that has a mean response less than the continue/discontinue mid-point of 5.5 is in the presence of adverse selection conditions and low moral reasoning level. This supports the contention that ethics constrains self-interest based behaviour.

4.3. Implications

The most important implication from this study relates to the generalizability of agency theory in the domain of accounting-based economic decisions. That is, accounting information can influence manager’s decisions. However, agency theory fails to explain many of the decisions that result from the receipt of such information. The results of this study suggest that agency models of self-interest based managerial decision-making are incomplete and need to be refined to include other potential influences. In particular, the contention from agency theory that individuals make
economic decisions based solely on their self-interest is not supported by this study. Rather, managerial self-interest may be constrained by ethical considerations, which casts much doubt on the agency theory assumption that behaviour is motivated solely by self-interest.

4.4. Future research

The most important extension of this study is derived from its implications. That is, it would be desirable to reexamine issues from prior research that are based on the self-interest behaviour assumptions of agency theory. Do the results of such research still hold in light of the implications of this study?

Future research may also include the examination of the effects of ethical considerations on other decision-making tasks. Alternatively, other decision-making groups may be examined for the effects of ethical considerations on their decisions. For example, is there a relationship between the moral reasoning level of a bank loan officer and their tendency to risk additional resources when a borrower experiences repayment difficulties and they (the loan officer) were originally responsible for approving the original loan? Is this tendency moderated by the level of adverse selection conditions?

Another extension that should provide important and useful results is the examination of the effects of teaching ethics. Can the teaching of ethical principles produce effective results (e.g., ethical decision-making)? If so, can this improved ethical decision making be accomplished best at an early age, or can such results occur at any age? Findings from such research could produce considerable benefits to the business community.

Appendix

A.1. Examples of case studies used in the experiment

A.1. Case 1: Low adverse selection condition (No incentive to shirk, no private information)

You are a senior project manager with a very solid industry-wide reputation gained over a period of years. A single project which was unprofitable would, therefore, cause no significant damage to your well-established reputation.

Four years ago, you decided to invest $1,000,000 into machinery to produce a new product, product A. Your decision was based on the following budgeted information:

<table>
<thead>
<tr>
<th>Economic Variable</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifetime of product</td>
<td>7 years</td>
</tr>
<tr>
<td>Annual net cash inflows</td>
<td>$320,000</td>
</tr>
<tr>
<td>Salvage value of machinery after 7 years</td>
<td>$50,000</td>
</tr>
<tr>
<td>Discount rate and minimum acceptance rate</td>
<td>16%</td>
</tr>
<tr>
<td>for new investments</td>
<td>125 years</td>
</tr>
<tr>
<td>Internal rate of return is above</td>
<td>25.86%</td>
</tr>
<tr>
<td>the 16% minimum</td>
<td></td>
</tr>
</tbody>
</table>

Actual results were better than expected during the first 4 years of the product’s life with annual net cash inflows of $350,000. However, unexpected production cost increases are expected to adversely affect Product A’s cash flows during the next three years. During the next 3 years, net cash inflows are expected to be $25,000 per year. The salvage value of the machinery at the end of the product’s life is still estimated to be $50,000. If the project (product A) is discontinued now, the machinery can be sold for $100,000. This amount could be invested in government bonds to yield 10% annually for the next three years. If the project is continued now, the results presented below are expected (the firm’s discount rate and minimum acceptance rate remain at 16%):

<table>
<thead>
<tr>
<th>Economic Variable</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payback period for entire product life</td>
<td>2.667 years</td>
</tr>
<tr>
<td>(years 1–7)</td>
<td></td>
</tr>
<tr>
<td>Internal rate of return for entire product life (years 1–7) is above the 16% minimum</td>
<td>17.29%</td>
</tr>
<tr>
<td>Internal rate of return for remaining three years of product A (years 5–7) is below the 16% minimum</td>
<td>-2.01%</td>
</tr>
</tbody>
</table>

If you decide to discontinue the project now, others in your firm and industry will believe the project was a failure, but this will not damage your...
well established reputation as a highly talented manager. The information about this project’s projected unfavorable future performance is already widely known to others in your firm and industry since the actual information above is public information.

Will you continue or discontinue project A? (please circle one of the numbers on the scale below)

| Definitely | Definitely |
| 1 2 3 4 5 | 6 7 8 9 10 |

A.1. Case 2: High adverse selection condition (incentive to shirk, private information)

You are a junior project manager with a growing reputation for completing profitable projects. This growing reputation of successfully managing projects has recently caused a competing firm to initiate recruiting discussions for a more important position with a substantially higher salary. However, being associated with a project which is unprofitable would damage your growing reputation and your immediate marketability. Four years ago, you decided to invest $1,000,000 into machinery to produce a new product, product A. Your decision was based on the following budgeted information:

- **Lifetime of product**: 7 years
- **Annual net cash inflows**: $320,000
- **Salvage value of machinery after 7 years**: $50,000
- **Discount rate and minimum acceptance rate for new investments**: 16%
- **Payback period**: 3.125 years
- **Internal rate of return**: above the 16% minimum

Actual results were better than expected during the first 4 years of the product’s life with annual net cash inflows of $350,000. However, unexpected production cost increases are expected to adversely affect product A’s cash flows during the next 3 years. During the next three years, net cash inflows are expected to be $25,000 per year. The salvage value of the machinery at the end of the product’s life is still estimated to be $50,000. If the project (product A) is discontinued now, the machinery can be sold for $100,000. This amount could be invested in government bonds to yield 10% annually for the next 3 years. If the project is continued now, the results presented below are expected (the firm’s discount rate and minimum acceptance rate remain at 16%):

- **Payback period for entire product life (years 1–7)**: 2.667 years
- **Internal rate of return for entire product life (years 1–7)**: above the 16% minimum
- **Internal rate of return for remaining 3 years of product A (years 5–7)**: below the 16% minimum
- **Internal rate of return**: -2.01%

If you decide to discontinue the project now, others in your firm and industry will believe the project was a failure, which will damage your reputation as a highly talented manager. This will probably cause the competing firm to withdraw its offer of a more important position at a substantially higher salary. As manager of the project, the interim information about its success or failure presented above is available only to you; this information is not available to others in your firm or industry. If you continue the project now, no further progress reviews are planned, and therefore, no information about the project’s success or failure will be known to others in your firm or industry until the project is completed (in three years); your reputation as a highly talented manager will remain intact.

Will you continue or discontinue project A? (please circle one of the numbers on the scale below)

| Definitely | Definitely |
| 1 2 3 4 5 | 6 7 8 9 10 |

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References


