

# THE EFFECT OF DECISION TIME HORIZON ON SHORT-TERMISM: AN EXPERIMENTAL APPROACH

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## Abstract

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Short-termism (i.e., the sub-optimal favouring of short-term performance over long-term performance) is generally explained as an outcome of the agency relationship whereby self-interested managers and/or stock market pressures distort the balance between short and long-term performance. We investigate if short-termism (Crilly, 2017; Reilly, Souder, & Ranucci, 2016) is due to cognitive bias (temporal distortion) rather than agency costs. We test these hypotheses with an experimental approach by applying a 3x2 factorial design to manipulate temporal distortion on 60 non-conflicted decision-makers. Results suggest that individuals make inconsistent investment decisions based on differing payout time horizons. Participants faced with simple comparisons between investment opportunities were consistent across different time periods and followed a model of rational decision-making. In contrast, more complex decisions led to intertemporal inconsistency. We provide evidence that: 1) individuals on the whole struggle to deal with incorporating time into business decisions in a consistent way causing us to question the link between short-termism and agency theory; 2) principals likely view investment decisions inconsistently across time and so are a cause of sub-optimal investment decision-making and 3) we need to look beyond studies of moral hazard associated with agency theory and/or myopic market pricing when investigating short-termism.

**Keywords:** Boards of Directors, Corporate Governance, Short-Termism, Board Process, Cognitive Bias

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## 1. INTRODUCTION

Mainstream economic theory posits that the corporation's purpose is to generate profit for shareholders (Porter, 1992; Andersen, 2019). This seemingly clear goal, however, is not easily translated into practice. Specifically, corporate

decision-makers (boards and executives alike) must balance the different aims or rationalities of their key stakeholders (Teixeira, de Queiroz Caleman, & da Silva Américo, 2020) along with their aim of securing long-term value for the corporation with sufficient short-term results to ensure survival (Merchant, 1990; van der Stede, 2000). Thus, the task

facing corporate decision-makers requires alignment between two possibly different payoff time horizons.

Both academic and normative literature highlights the fundamental problem of short-termism (Crilly, 2017). Short-termism arises when decision-makers “favor the short term at the expense of the long term... [i.e. the] intertemporal tradeoff is suboptimal” (Marginson & McAulay, 2008, p. 274). Traditionally, the causes of short-termism in corporate governance are attributed to the agency relationship between shareholders and management. Specifically, agency theory suggests two mechanisms that explain why managers over-emphasize short-term returns at the expense of long-term value creation. First, “rational” and “self-interested” agents (Eisenhardt, 1988, p. 491) may pursue short-term performance measures to maximize their interests. This moral hazard relies on an information asymmetry between the agent (manager) and principal (shareholder) that makes opportunistic manager behaviour possible (Laverty, 1996).

Second, there is a long tradition of research suggesting that stock market ownership encourages short-termism. Evidence of myopic pricing — where investors “overvaluing short-term earnings and undervaluing long-term earnings” (Abarbanell & Bernard, 2000, p. 221) has long been a criticism of the capital markets. For instance, Short-termism can affect important investment decisions such as R&D spending (Hsu, Lai, & Li, 2016). The financial market’s mispricing of firm value is thought to transfer through to corporate valuation processes and decisions (Porter, 1992; Bushee, 1998).

Both of these agency mechanisms rest on the (largely) unstated assumption that decision-makers are rational. In traditional economic thinking, rational decision-makers use two key criteria to choose between investment alternatives, namely investment uncertainty (or risk) and investment payoff timing (or time) (Frederick, Loewenstein, & O’Donoghue, 2002). Consequently, economic theorising about short-termism rests on two different but related models: the expected utility (EU) model to account for uncertainty and the discounted utility (DU) model to account for temporal differences (Prelec & Loewenstein, 1991; Skylark, Farmer, & Bahemia, 2021).

The EU model allows decision-makers to compare projects or initiatives with different risk profiles, whereas the DU model provides the basis for comparing returns in different time periods (see Samuelson, 1937 for the original model). The EU model allows us to compare project A (e.g., a 20% chance of success with a 600% return) with project B (e.g., a 40% chance of success with a 200% return). In contrast, the DU model does not involve differences in risk, but rather payout period. This would allow us to compare projects once a risk has been accounted for — for instance, comparing project A (payout \$5 in 1 year) with project B (payout \$7 in 2 years).

Evidence from behavioural economics (Thaler, 1981) suggests that any investigation of short-termism needs to separate these two different mechanisms. Individual factors have an important role in corporate investment decisions (Marginson & McAulay, 2008) and, further, it appears that individuals use hyperbolic functions for both health

(van der Pol & Cairns, 2002) and economic decisions (Ahlbrecht & Weber, 1997; Kirby & Maraković, 1995). This leads to temporal anomalies (i.e., a lack of traditional rationality) not modelled in standard economic theory, leading some to question whether standard finance models should be employed when modelling temporal decision-making (Frederick et al., 2002).

Our study aims to isolate whether individuals follow the DU model when making investment decisions when not influenced by the self-interest predictions of agency theory. This requires tight control of the decision and so we chose an experimental design. By ensuring decision-makers were not conflicted in the investment decision (i.e., unbiased from an agency perspective), we can conclude that any deviations from the DU model were not due to risk nor self-interest, but rather an inherent, systematic bias in decision-makers. If this is the case, it would provide a new research path for those interested in understanding short-termism in investment decision making and led to an overarching research question: *Is there evidence that investment payout timing affects short-termism in ways that deviate from standard agency theory’s predictions?*

We address this research question with an experimental approach. Specifically, we apply a 3x2 factorial designed to manipulate the potential for temporal distortion on 60 non-conflicted decision-makers. By using non-conflicted decision-makers, we eliminate the potential for agency costs, meaning any deviation from a rational decision model is due to a bias of temporal distortion.

The significance of our results lies in the implications for applying agency theory to explain short-termism in corporate decision-making. The results indicate that for simple decisions, unbiased decision-makers followed a rational (or DU) model of decision-making. When decisions were more complex, however, there was significant intertemporal inconsistency. These findings suggest that individuals struggle to consistently incorporate timing into investment decisions. As a result, principals (rather than agents) are likely to view investment decisions inconsistently across time and may be a cause of sub-optimal investment decision-making. Thus, we would suggest that researchers and practitioners may need to look beyond studies of moral hazard associated with agency theory and/or myopic market pricing when investigating short-termism.

The rest of the paper is structured as follows. In Section 2, we provide an overview of the key theory that informs the research and develop our research questions. In Section 3, we document the method and materials used in the experimental design before reporting the results in Section 4. In Section 5, we discuss the implications of these findings for research and practice. In Section 6, we conclude.

## 2. THEORETICAL FRAMEWORK

A defining feature of the corporate form is the delegation of power from the inanimate legal person of the corporation to human decision-

makers. In academic terms, this is most often presented as the delegation in power from those that formed the company (the shareholders or members) to the management. Although this concern was long recognised (Smith, 1776), agency theory was developed relatively recently to formally address the separation of ownership from control (Jensen & Meckling, 1976) and has risen to become the predominant framework for analysing corporate governance (Dalton, Hitt, Certo, & Dalton, 2007).

Agency theory provides insight into a contractual relationship where one party (the principal) delegates authority to another (the agent). Traditionally the theory focuses on two problems for the principal, moral hazard and adverse selection. A moral hazard occurs when the agents (managers) pursue their own interests at the expense of the principals (shareholders). When considering an investment, this would include situations where managers make decisions that will improve their personal financial outcomes (e.g., bonus payments), job security, or career progression at the expense of shareholder returns. In contrast, adverse selection occurs where the agent (manager) misrepresents their ability to carry out the tasks or achieve the goals of the principal (shareholder). This misrepresentation means they are, in essence, consciously incompetent and knowingly undermine the goals of the Principal. In terms of investment decisions, it would be where an individual seeks a job knowing they do not have the ability to make the investment decisions required in the role.

A third, less well-developed aspect of agency theory termed honest incompetence has emerged relatively recently. Honest incompetence is a “combination of bounded rationality and judgmental fallibility” (Hendry, 2002, p.101) and relies on relaxing the strong assumption in agency theory that all actors are rational decision-makers. In so doing, the construct identifies sources of concern that vary from agent’s self-interest (Kauppi & van Raaij, 2015). Hendry (2002) suggested honest incompetence arises when the principal does not specify their goals appropriately and/or the agent does not correctly interpret the principal’s goals. In this way, the agency costs occur not due to agent-principal goal conflict, but rather as a result of goal miscommunication. Similar factors that deviate from agent’s self-interest may occur where decisions honestly but systematically vary from rational decision-making models.

Agency theory is predicated on traditional finance theory and the DU model for temporal adjustments. This model, however, “continues to be widely used by economists [but] has little empirical support” (Frederick et al., 2002, p. 393). Instead, evidence suggests that individuals use hyperbolic functions, often associated with future health decisions (van der Pol & Cairns, 2002) to discount future payoffs. This is interesting as a hyperbolic function allows for temporal anomalies (i.e., a lack of traditional rationality) when compared with the exponential functions traditionally associated with finance theory (Amasino, Sullivan, Kranton, & Huettel, 2019; Ahlbrecht & Weber, 1997; Kirby & Maraković, 1995).

In terms of corporate investment decisions, individual differences appear to have an important role in understanding short-termism (Crilly, 2017). In their study of telecommunications company, Marginson and McAulay (2008) conclude that discussions of “capital markets and performance measurement systems alone” (p.287) will not reconcile short-term behaviour. Thus, our aim is to address Reilly et al.’s (2016) call to “isolate time horizon from related constructs — especially investment risk” (p. 1186).

Our focus is on isolating how temporal distortion (as opposed to self-interest or market pressures) may be a cause of short-termism. To do so, we seek to control for self-interest and risk by eliminating these variables from the decision in a controlled experiment and manipulating time as the key difference between options facing a decision-maker. If the rational decision-making model holds, it suggests a traditional agency theory approach to short-termism in corporate governance would be appropriate. If it does not, however, then it suggests our understanding of agency theory and/or short-termism would benefit from a substantial review.

To investigate rational decision-making across time via the standard DU model requires us to manipulate two variables: payoff and the timing of that payoff (Cheng, 2020). The simplest situation occurs when we compare a large payoff that will occur sooner in time than a smaller payoff. In this situation, the DU model suggests we would hypothesize:

*H1: Decision-makers prefer a higher return sooner over a lower return later in time.*

A second situation occurs where we have two investments with the same value, but differing payout timing. If the discounted utility model holds, then we would expect decision-makers to prefer the same payout sooner rather than later. More formally, we hypothesize that:

*H2: Decision-makers prefer the same value investment return sooner to the same value return later in time.*

The third situation involves a more direct test of why short-termism might arise (Crilly, 2017) irrespective of self-interest and market forces. The DU model is founded on the idea of stationarity, or the “assumption that preferences between two outcomes... depend only on the absolute time interval separating them” (van der Pol & Cairns, 2002, p. 80). This is because standard economic theory assumes that the preferred discounted rate, adjusted for inflation, remains constant over the time horizon of a decision (i.e., the same value change over the same period should remain constant no matter the time horizon). Thus, if (after controlling for risk) a rational decision maker prefers \$1 today to \$2 in a year, then a rational decision maker should prefer \$1 in 8 years to \$2 in 9 years.

Standard economic theory holds that principals’ preferences will meet the assumptions underlying this DU model. If this is not the case, and managers apply standard economic modelling, there would be a hitherto unrecognised agency cost, as the managers are not reflecting the principals’ interests. Restated, if a hyperbolic function is

the preference of principals, then application of the standard DU model is (counterintuitively) an agency cost. This leads to our third hypothesis to determine if decision-makers do indeed follow the standard assumptions of the DU model:

*H3: Decision-makers are consistent in their preference for a smaller payout over a larger payout when the time interval between the two is the same.*

### 3. MATERIAL AND METHODS

Given our focus on differentiating the “moral hazard” element of agency theory from a problem of “honest incompetence” (Hendry, 2002, p. 100), we sought to manipulate a situation where decision-makers would not be motivated towards short-termism, so any short-term orientation in decision-making would necessarily be a result of honest incompetence. Given the difficulties of isolating this situation in the real world, we made the decision to employ a highly controlled laboratory experiment. This allows us a claim the underlying causal mechanism of short-termism at work. In providing tight control over possible confounding variables, an experimental design also allows for strong internal validity, an important consideration when investigating a complex decision-making process.

Methods other than an experimental design might be used to conduct this research, for instance, a case study of a given board’s minutes and resolutions might help understand the mechanism of short-termism. However, results might be biased, as we may be authorised access to only some selected minutes and resolutions of a given board.

#### 3.1. Participants

Given the difficulty of getting access to actual boards (Norburn, 1989; Leblanc & Schwartz, 2007), and the complex nature of investigating a possible causal mechanism underlying agency costs in the actual boards’ process, participants of the experiment were 60 graduate students from the schools of Accounting and Finance at Yarmouk University (Jordan). All of them were Accounting or Finance graduate students with an understanding of concepts as time value of money, net present value (NPV), and financial decision-making. Moreover, graduate students of Accounting and Finance are thought to be more “numerated” and hence, are expected to be less inclined to make disadvantageous decisions (Cheng, 2020, p. 254).

While there are many differences between directors and students, our primary concern in the theoretical mechanism was avoiding a short-term motivation to participants. On this dimension, students are an ideal cohort — they are independent

of the decision being made, and meet the criteria suggested by agency theorists. Moreover, the potential lack of competence<sup>1</sup> in students is an advantage to our theoretical mechanism as incompetence among directors (who should be expert decision-makers) might be difficult to detect in a simplified, hypothetical board decision situation. Thus, we contend that students are ideal participants for an experiment based on our hypothesized causal mechanism.

#### 3.2. Task

Each participant was presented with a two-page hypothetical board decision scenario requiring them to make a choice. The first page contained the scenario, namely that they were a director of a company that needs to make an investment decision, namely deciding between two projects for the company. The second page contained the specific project decision for each participant.

#### 3.3. Manipulation

Hypotheses required a 3x2 factorial design and so we constructed six scenarios set out in Table 1. We manipulated the NPV (i.e., numerical estimate of the value of the project) as either \$50 or \$60. We manipulated the time horizon as a statement of when that value would be realized. In all cases, the difference between the project payouts was 1 year, but in one manipulation the payouts occurred in the short term (i.e., payoffs in years 1 and 2) while in the other condition, payouts occurred in the longer term (i.e., payoffs in years 9 and 10). A sample instrument is provided in Appendix A. Thus, the only factors a participant could consider were the project’s NPV and the timing of the project’s cash inflow.

#### 3.4. Procedure

Participants of this experiment were 60 graduate students from the schools of Accounting and Finance; the experiment took place at two different sessions. Participants of the first session were graduate students attending the Investment Management class, while participants of the second session were graduate students attending the Advanced Financial Management class. In line with best practice for causal inference, participants were randomly assigned to conditions by seating arrangement. The researchers did not influence seating arrangements nor did they have any connection with the classes involved.

<sup>1</sup> We attempted to ensure minimal competence for the task (e.g., understanding terminology) by drawing participants from two finance classes (specifically an Investment Management class and an Advanced Financial Management class.

**Table 1.** Payoff summary for each scenario

Variables		Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
A	Years to payoff	1	9	1	9	1	9
	Amount of payoff	\$60	\$60	\$50	\$50	\$50	\$50
B	Years to payoff	2	10	2	10	2	10
	Amount of payoff	\$50	\$50	\$60	\$60	\$50	\$50
Rational choice		A	A	?	?	A	A

#### 4. RESULTS

Table 2 presents the results of the choice made between projects A and B by participants under the six different scenarios outlined in Table 1. In four of the scenarios, participants clearly made

a rational choice by either selecting the project that would result in a higher value of the project sooner (scenarios 1 and 2) or the same value of the project in a shorter time period (scenarios 5 and 6). Thus, *H1* and *H2* are supported.

**Table 2.** Decision outcome for each of the six scenarios

Option	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
A	10	10	10	1	10	10
B	0	0	0	9	0	0
Rational choice	Y	Y	?	N*	Y	Y

Note: \* This is not a rational choice given the response to scenario 3 (i.e., the temporal choices are inconsistent).

The key inconsistency in participant answers occurs in scenarios 3 and 4. In scenario 3, all 10 participants opted for a project that delivered a lower return (\$50,000 vs. \$60,000) in a shorter period of time (1 year vs. 2 years). However, in scenario 4, some nine of the 10 participants chose the project that delivered a higher return (\$60,000 vs. \$50,000) in a longer period of time (10 years vs. 9 years). This is a striking result; in both cases, there was a \$10,000 difference in the projects and a one-year difference in a payoff. Yet the results were essentially reversed when that one-year time gap occurred in the short term vs. long term.

Results from Chi-square test indicate that this difference was statistically significant ( $p < 0.05$ ). Specifically, participants in scenario 3 who had to make their decision over the near future/short-run chose the sooner payoff (a year sooner) over the relatively higher payoff (higher NPV). Given the 2x3 experimental design, Cramer's V test (Cramer's  $V = 0.905$ ) suggested a practical significance in the result (Cohen, 1992, p. 99). Thus, *H3* is not supported.

#### 5. DISCUSSION

These results suggest that individuals appear to make inconsistent investment decisions based on differing payout time horizons. Support for *H1* and *H2* demonstrated that, when faced with simple comparisons between investment opportunities, participants made decisions consistent across different time periods and followed a model of rational decision-making. In contrast, there was no support for *H3* — and, in fact, the pattern of decision-making was starkly different. Participants favoured a payout of \$50,000 in a year over a payout of \$60,000 in 2 years — that means they should logically favour a payout of \$50,000 in 9 years over a payout of \$60,000 in 10 years (or vice versa). This was not the case and participants exhibited a form of intertemporal inconsistency that violates the assumption of stationary so central to the DU model of rational decision making and most financial modelling.

Three important implications for agency theory and short-termism arise from this discrepancy. First, individuals, in general, appear to prefer a closer, lower gain when faced with imminent payoffs compared with long-term payoffs. Given the experimental design of our research, this systematic preference was not motivated by self-interest, lack of information, nor some external force such as stock market myopia (Laverty, 1996), but rather appears to be a form of temporal aversion. Instead, it also provides evidence that individuals on the whole struggle to deal with incorporating time into business decisions in a consistent way and causes us to question the link between short-termism and agency theory.

Agency theory is at its core based on a misalignment of goals between the principal and agent (Jensen & Meckling, 1976; Fama & Jensen, 1983). If, as our results suggest, principals view investment decisions inconsistently across time then at least a partial cause of sub-optimal investment decision-making would lie with the honest incompetence of the Principals to specify an optimal financial outcome (Hendry, 2005). Findings that relax a homogeneous view of principals highlight how variations in Principal can change agency costs (Wang, Lin, & Cho, 2020). Given we know that educating directors can ameliorate short-termism around, for instance, R&D investments (Kuo, Wang, & Yeh, 2018), we need a great deal more research to understand the phenomena of principal goal misspecification so as to address that specific concern.

Similarly, the findings support calls to go beyond limiting studies of short-termism to the moral hazard associated with agency theory and/or myopic market pricing (Laverty, 1996). While we do not directly question the role of moral hazard and myopic market pricing in short-termism, there is growing evidence that people's decision-making deviates systematically from that predicted by naïve rational models. Thus, investigations into short-termism that fail to account for this effect suffer from a key missing variable and such an approach is likely to hamper the development of the field. Instead, we need to better understand the nature and extent of this bias and how it plays out in corporate decision-making. For instance, from

a definitional perspective, how does one assess a sub-optimal decision when the majority of (nearly all) people's preference set does not conform to a traditional, rational model? Is it that people are wrong or are our models wrong? At the very least, we need to build better descriptive models of investment decision-making if we are to advance the field.

Third, from a corporate governance perspective, there is growing evidence that decision-making biases appear to be a key factor in sub-optimal board decision-making (Westphal & Bednar, 2005; Zhu, 2013). Experimental studies in cognitive psychology have demonstrated intertemporal choice inconsistency (Thaler, 1981; Benzion, Rapoport, & Yagil, 1989; Prelec & Loewenstein, 1991) is a key challenge for individuals, and our evidence suggests that the bias will transfer through into corporate decision-making. In so doing, we join the research tradition that positions boards as information processing groups that may suffer from significant barriers and biases (Forbes & Milliken, 1999; Boivie, Bednar, Aguilera, & Andrus, 2016). In suggesting that independent decision-makers still favour a short-term position even when they are not motivated by self-interest, a lack of knowledge, or external market forces we highlight a key gap in our understanding of corporate decision-making motivations and processes (Marginson & McAulay, 2008). The field would benefit from specific studies that examined the prevalence and effect of any such bias on board decision-making.

Practically, our findings provide several useful insights for regulators, boards, and their advisors. First, boards and directors might do well to develop decision-making aids that directly counter the bias we see here (Bazerman, 1994). Our experiment suggests that simply using financial models to provide comparable models (e.g., IRR, NPV) is insufficient to overcome a bias that is inherent to the comparison of these standardised figures. Similarly, regulators may wish to think more broadly about the causes of short-term decision-making in their search for market efficiencies. This can be particularly the case for those seeking to understand how to improve corporate sustainability, as the answer may not lie in incentives alone (Lin-Hi & Blumberg, 2011) but also in understanding human decision biases around time.

## 6. CONCLUSION

Traditionally, short-termism has been linked to moral hazard and/or myopic capital market (Laverty, 1996; Bushee, 1998). This agency perspective "presents a partial view of the world" (Eisenhardt, 1989, p. 71). This research investigates short-termism as a decision bias that may arise in board decision making.

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Using an experimental design we present an alternative source of short-termism (i.e., agency costs), whereby decision maker may make inconsistent investment decisions based on differing payout time horizons. Such systematic bias in decisions with temporality challenges one basic assumption in the rational choice model; that is stationary.

The findings from this research suggest a new approach to investigating the relationship between the principal and the agent; whereby, cognitive issues arise as an important aspect of decision-making. Misalignment of interests, however, still explains other aspects of the contractual relationship.

As with all experimental studies, our findings have several limitations. The most important is the issue of external validity. Decision-makers in senior positions likely have "well-developed knowledge structures" that help them make decisions in their area of expertise, and hence deviation from the optimal choice among decision experts might not be as marked as it is among other individuals (i.e., students) solving general knowledge tasks (Joyce & Biddle, 1981, p. 142). Similarly, there may be important institutional decision support mechanisms that mitigate the impact of the effect we found. Both these important points do not, however, undermine the importance of our findings. Instead, it highlights how understanding these specific aspects of board decision making and incorporating them into our theorizing. Future research might consider addressing these concerns by examining the presence (if any) of decision support systems that aim to ameliorate the temporal inconsistencies we identify. This would go some ways to other potential concerns present around the implementation of the study that would benefit from future testing. For instance, the study was conducted in a specific location (Jordan) and since different cultures perceive time differently, this may affect the generalisation of our results to other regions and cultures. Future research might examine different contexts to ensure greater generalisability.

Incorporating the perception of time into decision-making models is an important consideration for the study of corporate governance and management. We hope that we have, in some small way, highlighted the importance of this topic to the field by demonstrating a potential cause of short-termism that lies outside of current theoretical foci on moral hazard and market myopic pricing. Instead, we suspect there is much to be gained by taking an information processing view of board decision making and highlighting the key deviations from the rational decision-making model that abound in boardroom decision-making.

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## APPENDIX A

### Study instrument

Dear Respondent,

Greetings

The researchers of this study are conducting a scientific investigation about board decision-making. To reach the goal of this study we have developed this experimental task that you are kindly asked to respond. The task asks you to act as a director of a hypothetical company and choose for it one of two mutually exclusive investment projects.

Note: The response you provide will be utilised only for the purposes of the scientific research.

Thanks.

#### Task (scenario 1)

As part of the expansion plan for company (Y), the board is about to choose one of two mutually exclusive investment projects. As a director on the board of company (Y), please vote for one of the following two investment projects:

*Project A:* Net present value of \$60,000 is expected to inflow to the company after 1 year from the outset of the project.

*Project B:* Net present value of \$50,000 is expected to inflow to the company after 2 years from the outset of the project.

Please mark (X) next to the investment project that you would vote for:

Project A

Project B

#### Task (scenario 2)

As part of the expansion plan for company (Y), the board is about to choose one of two mutually exclusive investment projects. As a director on the board of company (Y), please vote for one of the following two investment projects:

*Project A:* Net present value of \$60,000 is expected to inflow to the company after 9 years from the outset of the project.

*Project B:* Net present value of \$50,000 is expected to inflow to the company after 10 years from the outset of the project.

Please mark (X) next to the investment project that you would vote for:

Project A

Project B



**Task (scenario 3)**

As part of the expansion plan for company (Y), the board is about to choose one of two mutually exclusive investment projects. As a director on the board of company (Y), please vote for one of the following two investment projects:

*Project A:* Net present value of \$50,000 is expected to inflow to the company after 1 year from the outset of the project.

*Project B:* Net present value of \$60,000 is expected to inflow to the company after 2 years from the outset of the project.

Please mark (X) next to the investment project that you would vote for:

*Project A*

*Project B*

**Task (scenario 4)**

As part of the expansion plan for company (Y), the board is about to choose one of two mutually exclusive investment projects. As a director on the board of company (Y), please vote for one of the following two investment projects:

*Project A:* Net present value of \$50,000 is expected to inflow to the company after 9 years from the outset of the project.

*Project B:* Net present value of \$60,000 is expected to inflow to the company after 10 years from the outset of the project.

Please mark (X) next to the investment project that you would vote for:

*Project A*

*Project B*

**Task (scenario 5)**

As part of the expansion plan for company (Y), the board is about to choose one of two mutually exclusive investment projects. As a director on the board of company (Y), please vote for one of the following two investment projects:

*Project A:* Net present value of \$50,000 is expected to inflow to the company after 1 year from the outset of the project.

*Project B:* Net present value of \$50,000 is expected to inflow to the company after 2 years from the outset of the project.

Please mark (X) next to the investment project that you would vote for:

*Project A*

*Project B*

**Task (scenario 6)**

As part of the expansion plan for company (Y), the board is about to choose one of two mutually exclusive investment projects. As a director on the board of company (Y), please vote for one of the following two investment projects:

*Project A:* Net present value of \$50,000 is expected to inflow to the company after 9 years from the outset of the project.

*Project B:* Net present value of \$50,000 is expected to inflow to the company after 10 years from the outset of the project.

Please mark (X) next to the investment project that you would vote for:

*Project A*

*Project B*