

# BEYOND SELF-INTEREST: COGNITIVE BIAS AS A SOURCE OF AGENCY COSTS

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## Abstract

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Agency theory posits that the separation of ownership and control in a company allows self-interested managers to pursue their own interests by taking advantage of their superior information compared to shareholders. In this paper, we present evidence that agency costs (i.e., flawed director decision-making) can arise because of directors' limited competence and the problem of specification of objectives, independent of information asymmetry and director independence. Using a 2x2 experimental design addressed to 180 directors, we demonstrate that anchors (Angeletos & Huo, 2021) and the mechanism of fairness (Mussel et al., 2022) may cause directors to deviate from the rational choice that maximizes a given utility function. We argue that the decision-making process can undermine a director's ability to effectively monitor by exploiting their limited rationality, and this aspect remains inadequately specified in existing agency models. Consequently, we contribute to the literature that examines the board as a decision-making group by showcasing how a focused analysis of the decision process can unveil new mechanisms within the governance process.

**Keywords:** Agency Costs, Self-Interest, Board of Directors, Anchoring Effects, Ultimatum Game

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## 1. INTRODUCTION

Board decision-making, like decision-making in other human settings, can be analyzed through two approaches: the prescriptive approach and the behavioral approach (Simon, 1955, 1959). The prescriptive approach, derived from normative theory, provides a model for "how people ought to behave" in decision-making contexts. On the other hand, the behavioral approach focuses on describing how people actually "do behave" in such situations (Simon, 1959, p. 254). In the context of corporate governance, theories of decision-making generally

tend to be normative in nature, providing guidance on how decisions should be made.

Corporate governance theories propose that the structure of a board can influence corporate outcomes. According to agency theory (Fama & Jensen, 1983), boards composed of a majority of independent outside directors, with an independent director serving as the chair, are associated with improved financial performance. In the framework of agency theory, outside directors provide effective control over agency costs, such as managerial discretion and shirking. On the other hand, stewardship theory emphasizes the board's role in

facilitating effective decision-making (Donaldson, 1990; Donaldson & Davis, 1991, 1994). Stewardship theory aligns with agency theory (Donaldson & Davis, 1991) to some extent. It suggests that having a unified governance structure, where the chief executive officer (CEO) also serves as the chair of the board, and a board comprising knowledgeable and skilled inside directors can enhance the firm.

Large-scale empirical research into the links between board structure (e.g., board composition and board leadership structure) and performance has so far provided no clear evidence supporting either contrasting theoretical perspective on board structure (Yu, 2023; García-Ramos & Díaz, 2021; Dalton et al., 1998; Rhoades et al., 2000, 2001; Post & Byron, 2015). One reason for inconsistent findings may be that assumptions underlying normative approaches do not match reality.

While there is a significant body of research that adopts the prescriptive approach to studying boards, there is a notable dearth of investigations employing the behavioral approach. The behavioral approach delves into how boards actually make decisions. For instance, as the complexity of boards' decision-making increases, particularly in strategic judgments, directors tend to adjust to their cognitive limitations by utilizing simple decision strategies or heuristics (Bazerman, 1994). These heuristics, which are simplified decision-making rules, are "quite useful, but sometimes they lead to severe and systematic errors" (Tversky & Kahneman, 1974, p. 1124). In the context of agency theory, such systematic errors give rise to agency costs. However, they are often disregarded under the assumptions of rationality and full information that underlie the normative theory.

Experimental research from behavioral sciences has documented many decision situations in which an economic actor may not follow the assumptions underlying the rational choice model. Examples include: framing effect (Steiger & Kuhberger, 2018; Tversky & Kahneman, 1989), anchoring effect (Valdez et al., 2018; Tversky & Kahneman, 1974), endowment effect (Morewedge & Giblin, 2015), and ultimatum game (Mussel et al., 2022). This research investigates two of the most salient decision situations that a director faces: ultimatum game (Bornstein & Yaniv, 1998; Aina et al., 2020; Mussel et al., 2022) and anchoring effect (Tversky & Kahneman, 1974; Angeletos & Huo, 2021).

The ultimatum game is a psychological and economic tool that is used to investigate the behavior of the participants in making economic decisions whereby, parties in this game are known to deviate from the rational choice model. The "adjustment and anchoring" heuristic or simply anchoring effect is a well-known decision bias that is relevant to judgment situations involving estimates of uncertain quantities (Tversky & Kahneman, 1974, p. 1128). The anchoring effect has been demonstrated in both laboratory (mostly students) and field settings (real decision situations) (Jacowitz & Kahneman, 1995; Epley & Gilovich, 2006). However, prior research has not yet shown whether directors and expert decision-making, are also susceptible to anchoring effect or not (Bystranowski et al., 2021). Investigating decision bias (e.g., ultimatum game and anchoring effect) in board decision-making is a new avenue to researching boards, and might have important implications to

theory and practice. Leading to the overall research question:

*RQ: To what extent do directors bias in their decisions (i.e., agency costs) when facing decision situations that are pertinent to anchoring effect and ultimatum game?*

Answering this question is important given the inconsistency in results provided by the large prior empirical research that employed the normative approach to boards (i.e., linking board demographics to performance) (Yu, 2023; García-Ramos & Díaz, 2021; Dalton et al., 1998; Rhoades et al., 2000, 2001; Post & Byron, 2015). These prior studies are largely dominated by the agency perspective, which "presents a partial view of the world that, although it is valid, also ignores a good bit of the complexity of organizations; additional perspectives can help to capture the greater complexity" (Eisenhardt, 1989, p. 71). Thus, a behavioral approach to boards and directors may help advance our understanding to board decision-making.

Although the behavioral approach is a recent addition to corporate governance research, scholars in this field can draw upon the well-established traditional research in cognitive psychology. In a broader sense, theoretical frameworks from behavioral economics, psychology, and sociology can be utilized to formulate theories about how boards and directors behave during the board decision-making process (Bainbridge, 2002).

Besides advances to our understanding to directors and boards, investigating anchoring effect and ultimatum game in director decision-making may also advance our understanding to the behavioral theory of decision-making, as prior research employing the behavioral approach has mostly recruited students (Lipnevich et al., 2023; Steiger & Kuhberger, 2018; Valdez et al., 2018; Tversky & Kahneman, 1974), rather than expert decision makers (i.e., directors), to their experiments.

Through a 2x2 experimental design involving 180 directors, we illustrate how anchors, and the concept of fairness can lead directors to depart from the rational choice that seeks to maximize a specific utility function. This research presents proof that directors might not optimize a particular utility function due to issues tied to their competence. Additionally, they could opt for alternatives that do not maximize a designated function, whether it's their own utility or that of someone they represent. Furthermore, due to limitations in directors' competency, they could become susceptible to manipulation by a CEO who employs influencing tactics to influence their decisions. This study's findings back the assertion that self-interest is not the sole driving factor for agents, as agency costs can emerge regardless of board independence or information asymmetry.

Our argument centers on the notion that bounded rationality in the process of director decision-making may influence a director's capacity for effective monitoring. This dimension is often insufficiently detailed in existing agency models. Consequently, our contribution to the literature on board dynamics, as a decision-making group, lies in our demonstration of how a focused examination of the process of director decision-making can reveal new mechanisms within the governance framework.

The rest of the paper is structured as follows. In Section 2, we provide an overview of the behavioral theory of decision-making, as well as the theoretical concepts of “ultimatum game” and “anchoring effect”; hypotheses are developed to address the inquiry of this research. In Section 3, we present the experimental design, the instrument used, and procedures followed to collect data from the. Results are reported in Section 4, followed by a discussion in Section 5 where we provide implications for practice. Finally, we conclude the study in Section 6.

## 2. LITERATURE REVIEW

There are decision situations in which directors may take decisions that don't maximize shareholders wealth because of reasons other than those of “moral hazard” and “adverse selection” extensively posited in agency theory. Although agency theory is “usually described in terms of cases” (Eisenhardt, 1988, p. 490), it mostly describes cases (e.g., behavior and choices) that are captured by the utility function of each of the agent and the principal — it ignores those cases that are difficult to be “modeled mathematically” (Hendry, 2005, p. S57). For instance, agency theory would once describe a case of self-interested agents who are competent in defining own utility function and competent in maximizing it. Then, it would describe agents in the case of “agents made honest” by monitoring or alignment of interest, so that, these agents are not only made honest, but they are also competent in achieving the principal's objectives. On the other side of the agency relationship, agency theory assumes that the principal is also competent in defining his/her objectives and specifying them (communicating these objectives and effectuating them in the contract) to his/her agents. In an attempt to address “competence” assumed in agency theory, this research is highlighting two main issues pertinent to the agency relationship, yet both are not posited in standard agency theory: “honest incompetence” and “specification of objectives” (Hendry, 2002).

As one of the most controversial concepts of agency theory, competence is assumed on behalf of the two parties of the agency relationship. Nevertheless, limited competence of human beings is a real-life problem (Simon, 1959) that “is not recognized in agency theory at all” given the difficulties of formally modeling unpredictable behavior that limited competence underlies (Hendry, 2002, p. 99). In many cases, however, agents when doing their work rely on their fallible judgment, as well as imperfect work and judgment of others. In fact, judgment and discretion are inherent to managerial decision-making (Lorsch & MacIver, 1989). Limitations of time, information, and cognition almost surround every managerial judgment (Simon, 1959). Such limitations may jeopardize competence of the economic actor and hence negatively impact the outcomes of his/ her decisions. In other words, agents' deviation from maximizing shareholders wealth may be attributed to agents' cognition and issues related to limited competence of human beings.

Investigating limited competence in board decision-making would require an approach that moves beyond the monitoring/advice and resources

roles of boards, and focuses on boards as problem-solving institutions that facilitate coordination, and manage the complexity and uncertainty of strategic decision-making (McNulty & Pettigrew, 1999). In this view of boards, this research investigates two cases that may affect the outcomes of boards' decisions. First, directors not maximizing a given utility function because of reasons related to their limited competence. Second, directors do not maximize a given utility function because of reasons related to the principals' potential problem of “specification of objectives”, which arises when the principal may not know precisely what outcomes they would want under the wide range of different circumstances, and hence, the agent would also be unaware of what to achieve for the principal (Hendry, 2002, p. 100). In both cases, the agent would exercise judgment and settle with an alternative in accordance to his/her judgment.

### 2.1. The behavioral theory of decision-making

Although most corporate governance theories do not provide a theoretical ground to testing for these two problems (i.e., limited competence and specification of objectives) surrounding agency relationship, corporate governance research can still rely on the long-standing experimental research from cognitive psychology (Bainbridge, 2002). In general, theoretical frameworks from behavioral economics, psychology, and sociology can be employed to theorize the behavior of directors and boards in the process of board decision-making.

This research uses an experimental design in an attempt to catch, according to Hendry (2005, p. S55), more of the “active interplay of theory and observation” in board decision-making. In so doing, this research is carried out in a “spirit of theoretical pluralism” that includes agency theory and theories from the behavioral sciences to describe some decision situations in which directors may fall victims of their cognition (e.g., limited competence) and miscommunication with their principal (the problem of specification of objectives).

In the past four decades, experimental research in behavioral science (e.g., Steiger & Kuhberger, 2018; Tversky & Kahneman, 1974, 1981, 1989, 1991, 1992; Valdez et al., 2018; Morewedge & Giblin, 2015; Slovic et al., 1977) has documented that cognitive bias (e.g., limited competence) is evident in people decision making and that such bias is actually predictable and inherent to many decision situations (Tversky & Kahneman, 1986). People in general have limitations on their ability to gather, memorize, manipulate, and communicate information that is needed to make rational optimal decisions (Radner, 1996; Bazerman, 1994). Therefore, the observed decision-making may be far from the rational utility maximization model assumed in the traditional economic theory that drives most of corporate governance theories such as agency and stewardship theories.

The variation between the rational choice model and the observed behavior of decision makers has become more salient as economics was moving toward new topics (e.g., imperfect competition, labor economics, and decisions under uncertainty) that are surrounded by complexity and instability. Therefore, the adequacy of the rational choice theory in explaining the observed behavior of decision-makers

was considered anew (Simon, 1959). Moreover, the utility function of rational choice theory, and its characteristics, “if it exists”, can be compared to reality, whereby explaining the actual decision process can help better understand decision-making (Simon, 1955; Simon, 1959, p. 256).

Given the tremendous volume of decisions facing corporate decision makers, it is implausible (if not impossible) for corporate decision makers to follow the systematic and time-consuming demands of a traditional rational decision model. Instead, managers rely on their intuitive judgment in forming aspirations and then searching and choosing between alternatives (Bazerman, 1994). Thus, senior managers’ judgment or the “cognitive aspects of the decision-making process” vary from that modeled (Bazerman, 1994, p. 3). Thus, understanding this process is critical to governance as judgment constitutes most of managers’ significant decisions (Finkelstein & Boyd, 1998). Tversky and Kahneman (1986) noted that “the deviations of actual behavior from the normative model are too widespread to be ignored, too systematic to be dismissed as random error, and too fundamental to be accommodated by relaxing the normative system” (p. S252).

## 2.2. Ultimatum game

Drawing upon a behavioral approach to firms, a behavioral approach to boards and corporate governance may provide a better insight into board decision-making (Gabrielsson & Huse, 2004). Recently, the actual board decision processes have been closely examined and investigated by employing methods such as observational methods, interviewing directors, and document reviews (Maitlis, 2004; Parker, 2007; Bezemer et al., 2014; Pugliese et al., 2015). Moreover, there also have been investigations into board processes and mechanisms such as board strategic task performance (Minichilli et al., 2009; Zhang, 2010; Minichilli et al., 2012).

Given the difficulties of testing for this bias in the real-world directors’ context, a hypothetical decision situation of “ultimatum game” is presented to a sample of directors of Jordanian companies. Ultimatum game (Mussel et al., 2022; Larney et al., 2019; Aina et al., 2020) involves allocation of a sum of money to two players: the allocator and the recipient, so that the allocator is asked to propose to the recipient how the money is divided between both players. If the recipient accepts the proposal, both will be paid as per the agreed-on proposal, otherwise both paid nothing. Both players are aware of the game provision. The one-time proposal with no negotiation.

Ideally, and as prescribed in the rational choice model, if both players are rational decision makers who try to maximize their own utility, the allocator should offer the recipient the least percentage of the money to be allocated (i.e., say one percent of the money) and keeps the rest. Likewise, the recipient should accept such an offer since one percent is better than nothing (Bornstein & Yaniv, 1998). Such rational interaction between the two players of the game represents “how people ought to behave” rather than how people actually “do behave” (Simon, 1959, p. 254). Prior experimental research has documented that 50-50 proposals was the model offer of allocators, and proposals below this model were mostly rejected on part of recipients; emotional

mechanisms that arouse certain feelings like fairness were evident on part of both players in the ultimatum game (Ravid, 2020; Aina et al., 2020; Mussel et al., 2022; De Oliveira & Eckel, 2011). Such consideration of fairness in the ultimatum game would reflect one aspect of variation between the actual behavior of economic actors and the rational choice model prescribed in the standard theory of decision-making.

This research although replicates much of the prior experimental research from behavioral sciences (i.e., mostly testing students), the sample examined in this research (i.e., directors) is thought to represent expert decision-makers whose work involves various strategic decision situations as well as some smaller tasks. Thus, when playing any part of the ultimatum game, directors are expected to have a comprehension of the strategic structure of the ultimatum game which gets the proposer in a strategic advantage over the recipient. Nevertheless, a rational proposer (i.e., a director who is an expert decision-maker) may want to keep all and offer the least, but he/she may consider that the recipient may act non-rationally to any offer below 50-50, and hence, this rational proposer may avoid any offer that is not 50-50 just for the sake of not losing the money in hand. Hence, different scenarios may be assumed on part of a rational proposer. On the other hand, it is only one scenario that is assumed on part of a rational recipient; that is, accepting any offer. The argument here is that the recipient, unlike the proposer, has only to decide whether to accept or reject the offer, whereas the proposer has to think and consider the recipient’s reaction before offering a proposal. Thus, directors who participated in this experiment were only tested as recipients.

For simplicity, this research is testing directors when acting as recipients in the ultimatum game. One group of directors of Jordanian companies (i.e., the first group in the 2x2 experimental design) was asked to act as recipients in the ultimatum game and indicate the least percentage they accept from an allocator. In the agency theory logic, as expert strategic decision-makers (i.e., who are aware of the strategic advantage of the proposer) directors are ideally expected to indicate that one percent is the least percentage they would accept (Bornstein & Yaniv, 1998). Accordingly, rejecting an unfair proposal for the sake of fairness at the expense of maximizing wealth may not be considered in the agency theory logic, especially by strategic decision-makers like directors who strive to maximize a given utility function. Thus, the theoretic prediction for rational competent directors playing the recipient in this game is to accept any proposal since even one percent of the money is better than nothing. Thus, the first hypothesis is:

*H1: When acting as recipients in an ultimatum game, directors would accept the smallest proposal (i.e., one percentage).*

This research is also investigating how the problem of “specification of objectives” may affect board decision-making. The problem of “specification of objectives” arises when the principal may not know precisely what outcomes they would want under the wide range of different circumstances, and hence honest agent may exercise judgment that might/might not maximize the principal’s wealth (Hendry, 2002).

In many strategic board decision situations, the problem of specification of objectives might be present in action. First, directors are expert decision-makers who are specifically hired to exercise judgment on behalf of the principal who lacks expertise (Finkelstein & Boyed, 1998). Second, communicating the principal's objectives (i.e., thousands of shareholders) might be implausible, and hence, directors may exercise judgment and make decisions without referring to the principal, with outcomes that may not represent the objectives of the principal. If assuming honest directors who are not sure about the objectives of the principal, it is expected that they would settle with the alternative that is believed to maximize the principal wealth the most.

To account for such situation in this experiment, another group of directors (i.e., the second group in the 2x2 experimental design) was asked to act as a recipient deciding on an offer made to someone the director represents. A director in the second group is informed that he/she is getting nothing from the offer, and hence the mechanism of "opportunistic self-seeking" is relaxed for this condition of the experiment. The relaxing of this mechanism represents the logic and sequence of Hendry's (2002, p. 100) analysis to the problem of specification of objectives: "that both principals and agents are honest and that, having entered into obligations to achieve, as best they can, their principals' objectives, agents seek dutifully to do that". Extending Hendry's (2002) analysis to directors acting recipients on behalf of others in the ultimatum game, the director in the second group is assumed to be unaware of the preference of his/her principal (i.e., fairness vs. utility maximization). Nevertheless, it is expected that these assumed honest directors would decide the same as if they were deciding for themselves and settle with the utility maximization (accepting the least offer). Thus, the second hypothesis is:

*H2: There is no difference between directors acting as recipients deciding on offers made to own self and directors acting as recipients deciding on offers made to someone they represent.*

### 2.3. Anchoring effect

Finally, this research is testing whether directors may fall victims of CEO manipulation when presented with a resolution (i.e., a decision recommended by the CEO to the board in the form of a board paper that is presented in a board meeting). Agency theory predicts that an opportunistic CEO will seek to systematically manipulate directors' decisions. The structure of board papers which "begins with the resolution that will be put to the board" (Kiel & Nicholson, 2003, p. 158), may provide a unique context to investigate such manipulation. The chance of such manipulation may increase in decision situations that require judgment under uncertainty (the problem of specification of objectives as well as limited competence).

As the experiment of this research involves directors indicating a numeric value (i.e., the least percentage they would accept of the offer), "anchoring effect" is employed. Essentially, people when indicating a specific quantity or number on a certain scale of numbers, they start with information of which they are aware (i.e., an anchor

that is suggested to them or a self-generated anchor) (Epley & Gilovich, 2001, 2006) and then adjust around that piece of information to reach a conclusion. Tversky and Kahneman (1974, p. 1128) contend that the adjustment from the anchor value is insufficient and so they termed it "adjustment and anchoring".

The anchoring phenomenon contradicts the key principle of rational choice theory of invariance. The invariance principle in rational choice theory states that "different representations of the same choice problem should yield the same preference. That is, the preference between options should be independent of their description" (Tversky & Kahneman, 1986, p. S253). Anchoring clearly breaches this principle as people's estimates of numerical values are biased toward the initial value provided to them.

Subsequent research has confirmed anchoring effects. However, robust evidence that insufficient adjustment is the explaining mechanism for anchoring effect remains elusive (Tversky & Kahneman, 1974; Jacowitz & Kahneman, 1995; Epley & Gilovich, 2001; Mussweiler & Strack, 2001; Northcraft & Neale, 1987). This lack of evidence is caused by the two-procedure experiment design in the standard anchoring paradigm that does not provide for participants to articulate their decision process to see if it is a process of anchoring and adjustment (Epley & Gilovich, 2001, 2006).

The two-step procedure in the traditional anchoring test involves participants responding to two questions. First, the participant is asked to make a comparative assessment — whether an anchor provided in the materials (generally an arbitrary value) is more or less than the true value of the quantity (i.e., what the participant believes is the true value). Second, the participant is asked to provide an absolute, best estimate of the true value (Tversky & Kahneman, 1974; Block & Harper, 1991; Epley & Gilovich, 2001, 2006). This procedure has consistently shown that the anchor provided to participants is causally related to the estimate of participants — they consistently bias their estimates towards the anchor.

Directors participating in this experiment are presented with one of two conditions, representing the two levels of the second categorical independent variable. In the first condition, directors were firstly asked whether they accept a percentage that is below 50% of the money to be allocated (i.e., the assumed fair allocation of the money; the anchor). Secondly, directors were asked to indicate the least percentage of the money to be allocated. The sequence of the two questions follows the traditional testing of anchoring (Tversky & Kahneman, 1974; Block & Harper, 1991; Epley & Gilovich, 2001, 2006). On the other hand, directors presented with the second condition are asked to indicate the least percentage of the money to be allocated — without going through the first question (i.e., the anchor).

Any variation in the dependent variable across the two conditions of the second independent variable "anchoring effect" would provide some documented evidence that expert decision makers (i.e., directors) may fall victim of manipulation through anchors. Leading to the third hypothesis:

*H3: Directors may fall victim of CEO manipulation through anchors.*

### 3. RESEARCH METHODOLOGY

#### 3.1. Experimental design

This study utilizes a 2x2 experimental design with the goal of a clearer grasp of a relevant pathway of decision bias in board decision-making. Given the difficulty of bringing directors to a laboratory setting, the data collection instrument was sent to directors through social media platforms. The instrument is a small task sent to the sample. This task represents a hypothetical decision situation whereby a director is asked to act like he/she is a recipient in ultimatum game.

The design of this study consists of two independent variables and one dependent variable as follows:

The first independent variable is the *decision to be made*: so that a director would be asked to make a decision as a “recipient” in ultimatum game. This categorical variable has two levels:

- 1) making the decision for own self;
- 2) making the decision on behalf of someone.

Any variation in the dependent variables as explained by the first independent variable may be imputed to a true difference between directors (i.e., the sample of the study) making a decision for own-self or for someone else.

The second independent variable is *anchoring effect*, which is also a categorical variable that has two levels representing whether directors might be manipulated by a “resolution” with an anchor presented to them or not. These two levels are:

- 1) anchoring effect present (where the anchor is set at 50-50 proposal);
- 2) anchoring effect absent.

Any variation in the dependent variables as explained by the second independent variable may be imputed to directors’ susceptibility to anchoring manipulation.

The dependent variable is the *estimate of the least accepted percentage of the money*, which is a continuous variable.

Table 1 presents the experimental design of the study.

**Table 1.** Factorial 2x2 experimental design

		“Decision to be made” variable	
		For own self	On behalf of someone
“Anchor effect” variable	Anchor present (set at 50%)	Scenario A	Scenario C
	Anchor absent (control)	Scenario B	Scenario D

In summary, a director responding to Scenario A would have to: 1) make a decision for his/her own self (not someone else) whether he/she would accept a 50-50 proposal (i.e., the “Yes or No anchor” question), and then 2) indicate the least proposal he/she would accept. For Scenario B, a director responding to this scenario would also have to make the decision for his/her own self, yet he/she would be asked to indicate the least proposal he/she would accept (without going through the “Yes or No anchor” question). For Scenario C, a director responding to this scenario would be informed that he/she is delegated to make a decision on behalf of another person: 1) whether

to accept for that person a 50-50 proposal (i.e., the “Yes or No anchor” question), and then 2) indicate the least proposal he/she would accept for that person. Finally, for Scenario D, the director responding to this scenario would also be informed that: 1) he/she is delegated to make a decision on behalf of another person; 2) indicating the least proposal he/she would accept for that person (without going through the “Yes or No anchor” question). Full descriptions of the scenarios are presented in the Appendix.

A qualitative strategy utilizing an observational study may be employed as an alternative method to the one employed in this research (i.e., experiment). Such observational study may investigate directors’ meetings that are held to make decisions involving numerical reference points (e.g., budgeting costs and/or revenues — anchoring effect situations). Moreover, in many decision situations, directors’ interests may not be aligned with those interests of shareholders and hence may provide a context for testing the ultimatum concept in director decision-making. Nevertheless, such an observational study may require a long time waiting for the targeted meetings. In addition, the difficulty to gain access to board rooms is another limitation for such an observational study.

#### 3.2. Sample and procedures

Reaching directors has been always difficult, thus, the protocol for the data collection started by searching directors’ accounts on social media (Twitter, Facebook, Email, and LinkedIn). Directors’ names were collected from each company website and where a director’s profile was found, a link to the task was sent. The population of this research is directors of all Jordanian companies listed on the Amman Stock Exchange (ASE) by May 2022 (168 companies) (ASE, n.d.). The task was sent to a convenient sample of 400 directors (i.e., directors with an identified social media account). Moreover, the procedure of distributing the four scenarios of the task to directors took a pattern that is meant to ensure random distribution so that directors were equally assigned to the four scenarios (an Excel sheet was used to facilitate randomization through “The RAND function” and “custom sorting”).

Only 193 usable responses were received as the following: 52 responses for Scenario A, 45 responses for Scenario B, 48 responses for Scenario C, and 48 responses for Scenario D. Thus, 13 responses were randomly deleted to making responses equal across the four scenarios (45 responses in each scenario) so that the issue of non-orthogonal factorial design is not a concern (Tabachnick & Fidell, 2007). In total, 180 responses (45 for each scenario) were usable for analysis.

### 4. RESULTS

Data analysed was collected from 180 directors of 168 Jordanian companies listed on the ASE as of May 2022. A two-way ANOVA test (analysis of variance) is used. Software “IBM SPSS/version 23” was used to conduct the two-way ANOVA in order to compare the differences of the means among the four groups as per the 2x2 experimental design (i.e., two independent variables; each of which has two levels). To ensure ANOVA’s assumption of

equality of error variance was not violated, Levene's test for homogeneity of variances was applied. The results ( $F(3, 176) = 1.025$ ,  $p = 0.389$ ) indicate that the error variance across the four treatment groups is equal, and hence the analysis proceeds.

Table 2 illustrates the dependent variable's descriptive statistics (i.e., directors' estimates of the least proposal to accept) for each of the four treatment groups.

**Table 2.** Descriptive statistics for the participants' estimate of the least accepted percentage of the gift money they would accept

	Anchor present			Anchor absent			Anchor condition average		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
<i>The decision to be made (Condition)</i>									
• For own self	0.32	0.15	45	0.42	0.13	45	0.37	0.15	90
• On behalf someone	0.30	0.13	45	0.41	0.113	45	0.35	0.13	90
<i>The decision to be made (Condition average)</i>	0.31	0.14	90	0.42	0.13	90	-	-	-
Grand summary (All participants)	-	-	-	-	-	-	0.36	0.14	180

The least estimated proposal directors would accept (the dependent variable) was subjected to a 2x2 two-way analysis of variance having two levels of anchoring conditions (anchor set at 50-50 proposal/no anchor) and two levels of the decision to be made (making the decision for own self/making decision on behalf of someone). Inspection of Table 2 shows that the difference between the means of the two levels of the first independent variable "decision to be made" was not noticed, so the mean of accepted proposals by directors who completed the task of making the decision "For own-

self" was 37%, while it was 35% for those directors who completed the task as making the decision "On behalf of someone". However, the difference between the means of the two levels of the second independent variable "Anchoring condition (anchor set at 50-50 proposal/no anchor)" was 11%, whereby the mean of the least average accepted proposal by directors who completed the task with "50-50 proposal anchor" was 31%, which is less than that mean accepted proposal by directors who completed the task with "no anchor" 42%. Table 3 shows the tests of between-subjects effects results.

**Table 3.** Tests of between-subjects effects

Source	Type III sum of squares	df	Mean square	F	Sig.	Partial Eta squared	Noncent. parameter	Observed <sup>b</sup>
Corrected model	0.181 <sup>a</sup>	3	0.060	3.486	0.022	0.157	10.458	0.749
Intercept	7.884	1	7.884	454.400	0.000	0.890	454.400	1.000
Decision to be made	0.005	1	0.005	0.291	0.592	0.005	0.291	0.083
Anchor	0.176	1	0.176	10.146	0.002	0.153	10.146	0.869
Decision to be made* Anchor	0.000	1	0.000	0.022	0.884	0.000	0.022	0.052
Error	0.972	176	0.017					
Total	9.037	180						
Corrected total	1.153	179						

Note: a. R-squared = 0.157 (Adjusted R-squared = 0.112); b. Computed using alpha = 0.05.

Analysis of variance showed a statistically non-significant main effect of the first independent variable "decision to be made" on the dependent variable "directors' estimate to the least proposal they accept",  $F(1, 176) = 0.291$ ,  $p > 0.05$ . Importantly, measured by "partial eta squared", the main effect of the first independent variable had a very small practical significance ( $\eta^2 = 0.005$ ) (Cohen, 1992, p. 98). On the other hand, the main effect of the second independent variable "50-50 proposal anchor" on the dependent variable "directors' estimate to the least proposal they accept" is statistically significant,  $F(1, 176) = 10.15$ ,  $p < 0.05$ . Moreover, this statistical significance was supported by a medium practical significance measured by "partial eta squared" ( $\eta^2 = 0.15$ ). Finally, the interaction effect between the two variables (Anchoring and decision to be made) on the dependent variable is neither practically significant nor statistically significant,  $F(1, 176) = 0.022$ ,  $p > 0.05$ .

Based on the results of this research the first hypothesis is not supported, so the results indicate that the least offer that directors on average may accept is 37% when acting as recipients for own

selves. Nevertheless, the results provide some support for the second hypothesis, whereby there was no difference between directors acting as recipients deciding on offers made to own self and directors acting as recipients deciding on offers made to someone they represent. Finally, the results provide support to the third hypothesis, that is, directors may fall victim of CEO manipulation through anchors.

## 5. DISCUSSION

Drawing attention to the impact of a board process, specifically the constraints on directors' capabilities, on decision outcomes highlights the significance attached to governance information processes by practitioners, including regulators. The academic exploration of regulatory measures pertaining to the governance process, such as the mandate for boards to establish an audit committee or the requirement for attestations from senior executives, has been relatively limited, possibly due to its frequent integration with regulations concerning board composition, such as the necessity for independent directors on audit committees.

While considerable effort has been devoted to understanding the nature of composition requirements, less emphasis has been placed on examining the consequences and behaviors influenced by the regulation of the process itself, irrespective of composition factors.

Our study highlights the importance of understanding the specific mechanisms that underlie regulatory recommendations. Thus far, it can be argued that the majority of governance recommendations primarily concentrate on factors such as actor motivation and information asymmetry, while paying less attention to how the actual decision-making process, which involves the transfer and processing of information, can result in flawed outcomes. In our study, we observed that a process aimed at improving the efficiency of information transfer can inadvertently lead to unintended consequences, such as an increased likelihood of the anchoring effect. Therefore, it is advisable for practitioners to question the effectiveness of “one size fits all” approaches to governance practices and instead focus on analysing the advantages and disadvantages of different practices and how they interact with each other.

## 6. CONCLUSION

In this paper, we provide further insight into the agency problem caused by the reasons related to the competence of the agents. Specifically, we provide evidence that the directors may not maximize a given utility function for reasons related to their competence. And that they may choose an alternative that does not maximize a given function, whether it is their own utility function or someone they represent. In addition, because of reasons related to directors' limited competence, directors may fall victim of a manipulative CEO who may use anchors to affect directors' decisions. The results of this research support the argument that self-interest is not the only motive of agents, as agency costs may arise irrespective of board independence or information asymmetry.

## REFERENCES

1. Aina, C., Battigalli, P., & Gamba, A. (2020). Frustration and anger in the ultimatum game: An experiment. *Games and Economic Behavior*, 122, 150-167. <https://doi.org/10.1016/j.geb.2020.04.006>
2. Amman Stock Exchange (ASE). (n.d.). *Jordan number of listed companies: ASE*. CEIC. <https://www.ceicdata.com/en/jordan/amman-stock-exchange-number-of-listed-companies-and-listed-shares/number-of-listed-companies-ase>
3. Angeletos, G.-M., & Huo, Z. (2021). Myopia and anchoring. *American Economic Review*, 111(4), 1166-1200. <https://doi.org/10.1257/aer.20191436>
4. Bainbridge, S. M. (2002). Why a board? Group decisionmaking in corporate governance. *Vanderbilt Law Review*, 55(1), 1-55. <https://scholarship.law.vanderbilt.edu/vlr/vol55/iss1/1>
5. Bazerman, M. (1994). *Judgment in managerial decision making* (3rd ed.). Wiley.
6. Bezemer, P.-J., Nicholson, G., & Pugliese, A. (2014). Inside the boardroom: Exploring board member interactions. *Qualitative Research in Accounting & Management*, 11(3), 238-259. <https://doi.org/10.1108/QRAM-02-2013-0005>
7. Biella, M., & Sacchi, S. (2018). Not fair but acceptable... for us! Group membership influences the tradeoff between equality and utility in a third party ultimatum game. *Journal of Experimental Social Psychology*, 77, 117-131. <https://doi.org/10.1016/j.jesp.2018.04.007>
8. Block, R. A., & Harper, D. R. (1991). Overconfidence in estimation: Testing the anchoring-and-adjustment hypothesis. *Organizational Behavior and Human Decision Processes*, 49(2), 188-207. [https://doi.org/10.1016/0749-5978\(91\)90048-X](https://doi.org/10.1016/0749-5978(91)90048-X)
9. Bornstein, G., & Yaniv, I. (1998). Individual and group behavior in the ultimatum game: Are groups more “rational” players? *Experimental Economics*, 1, 101-108. <https://doi.org/10.1023/A:1009914001822>
10. Bystranowski, P., Janik, B., Próchnicki, M., & Skórska, P. (2021). Anchoring effect in legal decision-making: A meta-analysis. *Law and Human Behavior*, 45(1), 1-2. <https://doi.org/10.1037/lhb0000438>

Our research's main finding calls for scholars to deepen their understanding of the governing process. Over the past two decades, substantial efforts have been made to enhance comprehension of the behavioral aspects of corporate governance, especially the actions of board members and CEOs. These endeavors primarily focus on exploring the psychological and sociological phenomena that influence directors and boards (Carpenter & Westphal, 2001; Westphal & Stern, 2006, 2007).

This shift in focus introduces an additional mechanism, beyond self-interest and information asymmetry, within the agency relationship. It highlights the significance of the monitoring process, which is often overlooked in corporate governance research despite its high relevance. While previous studies have examined governance process arrangements, they usually view the process merely as an indicator or facilitator of information asymmetry or motivation (e.g., Pugliese et al., 2015). Consequently, normative recommendations have primarily aimed at mitigating information asymmetry, particularly through the presence of independent monitors, such as the growing emphasis on independent audit committees.

This research has focused on directors' decisions rather than boards as a group; unanimity and deliberation are inherent to board decision-making (Bainbridge, 2002). Moreover, directors convene periodically to make decisions that evolve and develop over time (Forbes & Milliken, 1999). The board's collaborative nature brings forth concerns regarding both norms and the imbalance of information, which could potentially lead to new perspectives on accountability. How do boards ensure the appropriate sharing of information among directors? How do boards effectively manage relationships to minimize information asymmetry through information exchange? These crucial inquiries are often overlooked within the realm of corporate governance and provide new avenues for future research.



11. Carpenter, M. A., & Westphal, J. D. (2001). The strategic context of external network ties: Examining the impact of director appointments on board involvement in strategic decision making. *Academy of Management Journal*, 44(4), 639–660. <https://citeseerx.ist.psu.edu/viewdoc/download?rep=rep1&type=pdf&doi=10.1.1.199.1057>
12. Cohen, J. (1992). Statistical power analysis. *Current Directions in Psychological Science*, 1(3), 98–101. <https://doi.org/10.1111/1467-8721.ep10768783>
13. Dalton, D. R., Daily, C. M., Ellstrand, A. E., & Johnson, J. L. (1998). Meta-analytic reviews of board composition, leadership structure, and financial performance. *Strategic Management Journal*, 19(3), 269–290. [https://doi.org/10.1002/\(SICI\)1097-0266\(199803\)19:3<269::AID-SMJ950>3.0.CO;2-K](https://doi.org/10.1002/(SICI)1097-0266(199803)19:3<269::AID-SMJ950>3.0.CO;2-K)
14. Donaldson, L. (1990). The ethereal hand: Organizational economics and management theory. *The Academy of Management Review*, 15(3), 369–381. <https://doi.org/10.2307/258013>
15. Donaldson, L., & Davis, J. H. (1991). Stewardship theory or agency theory: CEO governance and shareholder returns. *Australian Journal of Management*, 16(1), 49–64. <https://doi.org/10.1177/031289629101600103>
16. Donaldson, L., & Davis, J. H. (1994). Boards and company performance - Research challenges the conventional wisdom. *Corporate Governance: An International Review*, 2(3), 151–160. <https://doi.org/10.1111/j.1467-8683.1994.tb00071.x>
17. Eisenhardt, K. M. (1988). Agency-and institutional-theory explanations: The case of retail sales compensation. *Academy of Management Journal*, 31(3), 488–511. <https://journals.aom.org/doi/10.5465/256457>
18. Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *The Academy of Management Review*, 14(1), 57–74. <https://doi.org/10.2307/258191>
19. Epley, N., & Gilovich, T. (2001). Putting adjustment back in the anchoring and adjustment heuristic: Differential processing of self-generated and experimenter-provided anchors. *Psychological Science*, 12(5), 391–396. <https://doi.org/10.1111/1467-9280.00372>
20. Epley, N., & Gilovich, T. (2006). The anchoring-and-adjustment heuristic: Why the adjustments are insufficient. *Psychological Science*, 17(4), 311–318. <https://doi.org/10.1111/j.1467-9280.2006.01704.x>
21. Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The Journal of Law and Economics*, 26(2), 301–325. <https://doi.org/10.1086/467037>
22. Finkelstein, S., & Boyd, B. K. (1998). How much does the CEO matter? The role of managerial discretion in the setting of CEO compensation. *Academy of Management Journal*, 41(2), 179–199. <http://surl.li/mqzbe>
23. Forbes, D. P., & Milliken, F. J. (1999). Cognition and corporate governance: Understanding boards of directors as strategic decision-making groups. *The Academy of Management Review*, 24(3), 489–505. <https://doi.org/10.2307/259138>
24. Gabriellsson, J., & Huse, M. (2004). Context, behavior, and evolution: Challenges in research on boards and governance. *International Studies of Management & Organization*, 34(2), 11–36. <https://doi.org/10.1080/00208825.2004.11043704>
25. García-Ramos, R., & Díaz, B. D. (2021). Board of directors structure and firm financial performance: A qualitative comparative analysis. *Long Range Planning*, 54(6), Article 102017. <https://doi.org/10.1016/j.lrp.2020.102017>
26. Hendry, J. (2002). The principal's other problems: Honest incompetence and the specification of objectives. *The Academy of Management Review*, 27(1), 98–113. <https://doi.org/10.2307/4134371>
27. Hendry, J. (2005). Beyond self-interest: Agency theory and the board in a satisficing world. *British Journal of Management*, 16(s1), S55–S63. <https://doi.org/10.1111/j.1467-8551.2005.00447.x>
28. Jacowitz, K. E., & Kahneman, D. (1995). Measures of anchoring in estimation tasks. *Personality and Social Psychology Bulletin*, 21(11), 1161–1166. <https://doi.org/10.1177/01461672952111004>
29. Kiel, G. C., & Nicholson, G. J. (2003). *Boards that work: A new guide for directors*. McGraw-Hill.
30. Larney, A., Rotella, A., & Barclay, P. (2019). Stake size effects in ultimatum game and dictator game offers: A meta-analysis. *Organizational Behavior and Human Decision Processes*, 151, 61–72. <https://doi.org/10.1016/j.obhdp.2019.01.002>
31. Lipnevich, A. A., Eßer, F. J., Park, M. J., & Winstone, N. (2023). Anchored in praise? Potential manifestation of the anchoring bias in feedback reception. *Assessment in Education: Principles, Policy & Practice*, 30(1), 4–17. <https://doi.org/10.1080/0969594X.2023.2179956>
32. Lorsch, J. W., & MacIver, E. (1989). *Pawns or potentates: the reality of America's corporate boards*. Harvard Business School Press.
33. Maitlis, S. (2004). Taking it from the top: How CEOs influence (and fail to influence) their boards. *Organization Studies*, 25(8), 1275–1311. <https://doi.org/10.1177/0170840604046318>
34. McNulty, T., & Pettigrew, A. (1999). Strategists on the board. *Organization Studies*, 20(1), 47–74. <https://doi.org/10.1177/0170840699201003>
35. Minichilli, A., Zattoni, A., Nielsen, S., & Huse, M. (2012). Board task performance: An exploration of micro- and macro-level determinants of board effectiveness. *Journal of Organizational Behavior*, 33(2), 193–215. <https://doi.org/10.1002/job.743>
36. Minichilli, A., Zattoni, A., & Zona, F. (2009). Making boards effective: An empirical examination of board task performance. *British Journal of Management*, 20(1), 55–74. <https://doi.org/10.1111/j.1467-8551.2008.00591.x>
37. Morewedge, C. K., & Gliblin, C. E. (2015). Explanations of the endowment effect: An integrative review. *Trends in Cognitive Sciences*, 19(6), 339–348. <https://doi.org/10.1016/j.tics.2015.04.004>
38. Mussel, P., Weiß, M., Rodrigues, J., Heekeren, H., & Hewig, J. (2022). Neural correlates of successful costly punishment in the ultimatum game on a trial-by-trial basis. *Social Cognitive and Affective Neuroscience*, 17(6), 590–597. <https://doi.org/10.1093/scan/nsab126>
39. Mussweiler, T., & Strack, F. (2001). The semantics of anchoring. *Organizational Behavior and Human Decision Processes*, 86(2), 234–255. <https://doi.org/10.1006/obhd.2001.2954>
40. Northcraft, G. B., & Neale, M. A. (1987). Experts, amateurs, and real estate: An anchoring-and-adjustment perspective on property pricing decisions. *Organizational Behavior and Human Decision Processes*, 39(1), 84–97. [https://doi.org/10.1016/0749-5978\(87\)90046-X](https://doi.org/10.1016/0749-5978(87)90046-X)
41. De Oliveira, A. C. M., & Eckel, C. C. (2011). Heterogeneity in ultimatum bargaining: The role of information, individual characteristics, and emotions. In G. Bolton & R. Croson (Eds.), *The Oxford handbook of economic conflict resolution* (pp. 295–312). Oxford University Press. <https://doi.org/10.2139/ssrn.1883702>

42. Parker, L. D. (2007). Boardroom strategizing in professional associations: Processual and institutional perspectives. *Journal of Management Studies*, 44(8), 1454-1480. <https://doi.org/10.1111/j.1467-6486.2007.00713.x>
43. Post, C., & Byron, K. (2015). Women on boards and firm financial performance: A meta-analysis. *Academy of Management Journal*, 58(5), 1546-1571. <https://doi.org/10.5465/amj.2013.0319>
44. Pugliese, A., Nicholson, G., & Bezemer, P.-J. (2015). An observational analysis of the impact of board dynamics and directors' participation on perceived board effectiveness. *British Journal of Management*, 26(1), 1-25. <https://doi.org/10.1111/1467-8551.12074>
45. Radner, R. (1996). Bounded rationality, indeterminacy, and the theory of the firm. *The Economic Journal*, 106(438), 1360-1373. <https://doi.org/10.2307/2235528>
46. Ravid, D. (2020). Ultimatum bargaining with rational inattention. *American Economic Review*, 110(9), 2948-2963. <https://doi.org/10.1257/aer.20170620>
47. Rhoades, D. L., Rechner, P. L., & Sundaramurthy, C. (2000). Board composition and financial performance: A meta-analysis of the influence of outside directors. *Journal of Managerial Issues*, 12(1), 76-91. <http://www.jstor.org/stable/40604295>
48. Rhoades, D. L., Rechner, P. L., & Sundaramurthy, C. (2001). A meta-analysis of board leadership structure and financial performance: Are "two heads better than one"? *Corporate Governance: An International Review*, 9(4), 311-319. <https://doi.org/10.1111/1467-8683.00258>
49. Simon, H. A. (1955). A behavioral model of rational choice. *The Quarterly Journal of Economics*, 69(1), 99-118. <https://doi.org/10.2307/1884852>
50. Simon, H. A. (1959). Theories of decision-making in economics and behavioral science. *The American Economic Review*, 49(3), 253-283. <http://www.jstor.org/stable/1809901>
51. Slovic, P., Fischhoff, B., & Lichtenstein, S. (1977). Behavioral decision theory. *Annual Review of Psychology*, 28, 1-39. <https://doi.org/10.1146/annurev.ps.28.020177.000245>
52. Tabachnick, B. G., & Fidell, L. S. (2019). *Using multivariate statistics* (7th ed.). Pearson.
53. Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. Biases in judgments reveal some heuristics of thinking under uncertainty. *Science*, 185(4157), 1124-1131. <https://doi.org/10.1126/science.185.4157.1124>
54. Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, 211(4481), 453-458. <https://doi.org/10.1126/science.7455683>
55. Tversky, A., & Kahneman, D. (1986). Rational choice and the framing of decisions. *The Journal of Business*, 59(4), S251-S278. <https://doi.org/10.1086/296365>
56. Tversky, A., & Kahneman, D. (1989). Rational choice and the framing of decisions. In B. Karpak & S. Zionts (Eds.), *Multiple criteria decision making and risk analysis using microcomputers* (NATO ASI Series, Vol. 56, pp. 81-126). Springer. [https://doi.org/10.1007/978-3-642-74919-3\\_4](https://doi.org/10.1007/978-3-642-74919-3_4)
57. Tversky, A., & Kahneman, D. (1991). Loss aversion in riskless choice: A reference-dependent model. *The Quarterly Journal of Economics*, 106(4), 1039-1061. <https://doi.org/10.2307/2937956>
58. Tversky, A., & Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and Uncertainty*, 5, 297-323. <https://doi.org/10.1007/BF00122574>
59. Steiger, A., & Kühberger, A. (2018). A meta-analytic re-appraisal of the framing effect. *Zeitschrift für Psychologie*, 226(1), 45-55. <https://doi.org/10.1027/2151-2604/a000321>
60. Valdez, A. C., Ziefle, M., & Sedlmair, M. (2018). Priming and anchoring effects in visualization. *IEEE Transactions on Visualization and Computer Graphics*, 24(1), 584-594. <https://doi.org/10.1109/TVCG.2017.2744138>
61. Westphal, J. D., & Stern, I. (2006). The other pathway to the boardroom: Interpersonal influence behavior as a substitute for elite credentials and majority status in obtaining board appointments. *Administrative Science Quarterly*, 51(2), 169-204. <https://doi.org/10.2189/asqu.51.2.169>
62. Westphal, J. D., & Stern, I. (2007). Flattery will get you everywhere (especially if you are a male Caucasian): How ingratiation, boardroom behavior, and demographic minority status affect additional board appointments at U.S. companies. *Academy of Management Journal*, 50(2), 267-288. <https://doi.org/10.5465/amj.2007.24634434>
63. Yu, M. (2023). CEO duality and firm performance: A systematic review and research agenda. *European Management Review*, 20(2), 346-358. <https://doi.org/10.1111/emre.12522>
64. Zhang, P. (2010). Board information and strategic tasks performance. *Corporate Governance: An International Review*, 18(5), 473-487. <https://doi.org/10.1111/j.1467-8683.2010.00816.x>

## APPENDIX

### Scenario A

Dear Participant,

We are conducting a study that investigates the process of decision-making. Please, read the following scenario and answer the questions below. All responses will be treated confidentially and only used for scientific research.

*Ultimatum game (One shot game):* Two players are involved in this game where the first player (Proposer) is given some money and asked to share it with the second player (Responder). The proposer, the first player, is asked to propose the rate based on which the money will be distributed between him/her and the responder. If the respondent accepts the proposal made by the proposer, the money will be distributed as per the proposal. Otherwise, both players get nothing. Both the players know in advance the terms of the game. If you were the Responder:

1. Will you accept 50% of the money?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

2. What is the minimum percentage that you will accept?

-----

### Scenario B

Dear Participant,

We are conducting a study that investigates the process of decision-making. Please, read the following scenario and answer the questions below. All responses will be treated confidentially and only used for scientific research.

*Ultimatum game (One shot game):* Two players are involved in this game where the first player (Proposer) is given some money and asked to share it with the second player (Responder). The proposer, the first player, is asked to propose the rate based on which the money will be distributed between him/her and the responder. If the respondent accepts the proposal made by the proposer, the money will be distributed as per the proposal. Otherwise, both players get nothing. Both the players know in advance the terms of the game. If you were the Responder:

1. What is the minimum percentage that you will accept?

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### Scenario C

Dear Participant,

We are conducting a study that investigates the process of decision-making. Please, read the following scenario and answer the questions below. All responses will be treated confidentially and only used for scientific research.

*Ultimatum game (One shot game):* Two players are involved in this game where the first player (Proposer) is given some money and asked to share it with the second player (Responder). The proposer, the first player, is asked to propose the rate based on which the money will be distributed between him/her and the responder. If the respondent accepts the proposal made by the proposer, the money will be distributed as per the proposal. Otherwise, both players get nothing. Both the players know in advance the terms of the game. If you were authorized to make the decision on behalf the Responder:

1. Will you accept 50% of the money?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

2. What is the minimum percentage that you will accept?

-----

### Scenario D

Dear Participant,

We are conducting a study that investigates the process of decision-making. Please, read the following scenario and answer the questions below. All responses will be treated confidentially and only used for scientific research.

*Ultimatum game (One shot game):* Two players are involved in this game where the first player (Proposer) is given some money and asked to share it with the second player (Responder). The proposer, the first player, is asked to propose the rate based on which the money will be distributed between him/her and the responder. If the respondent accepts the proposal made by the proposer, the money will be distributed as per the proposal. Otherwise, both players get nothing. Both the players know in advance the terms of the game. If you were authorized to make the decision on behalf the Responder:

1. What is the minimum percentage that you will accept?

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