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Guilt Aversion and the Financial Behavior of Individuals: The Moderating Role of Ethical Ideologies

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Abstract

In the rapidly advancing economic and technological landscape, the importance of ethical considerations in individual decision-making has gained unprecedented attention. The absolute authority held by one party in certain business contexts, such as participatory budgeting and financial consulting, emphasizes the significance of ethical decision-making. This research aims to investigate how individuals' guilt aversion influences their financial behavior while also considering the moderating role of their ethical ideologies. This approach addresses the research gap regarding the oversight of individuals' personal attitudes toward ethics when studying guilt aversion. The study population was comprised of undergraduate students at the University of Tabriz, and a sample of 52 participants was selected using a random sampling method. The sample was then divided into two groups, dictators and receivers, and their behavior was examined. A combination of active observation and questionnaire methods was employed to collect data. The results suggest that while guilt aversion does not significantly impact individuals' financial behavior, ethical ideologies moderate the relationship between guilt aversion and financial behavior.

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1. Introduction

Technology has empowered us to conduct virtual transactions that often occur without direct communication between the involved parties. Consequently, the importance of ethical behavior in transactions and agreements is greater than ever before. Numerous factors influence ethical behavior among individuals, Including social preferences.

In recent years, researchers have examined social preference models extensively, which, to some extent, can cultivate a sense of responsibility in individuals toward their transaction counterparts. These models often investigate individual behavior at the crossroads of personal gains without necessarily accounting for the interests of others, considering both personal gains and social status. Social preference models assume that people, while pursuing their own interests, also concern themselves with the benefits or interests received by others (Charness and Rabin, 2002). People with social preferences believe that other's gains might have far-reaching consequences for them (Fehr and Charness, 2023). Researchers have provided various reasons to explain the attention paid to social status by different individuals. Some studies attribute guilt aversion to be impactful on ethical behavior and behavior based on social preferences. However, other researchers refute the impact of guilt aversion on individuals' behavior, highlighting factors such as group dependence and the effect of false consensus. On the other hand, some studies report a limited effect of guilt aversion, observed only in specific conditions, such as reduced social distances and the allocated share for the transaction parties.

In economics, guilt aversion is considered a significant factor affecting the level of trust between transaction parties and their ethical behavior. Guilt aversion is based on the idea that people avoid feeling guilty (disappointing others who have trusted them makes people feel guilty). (Fehr and Charness, 2023). As individuals experience higher levels of guilt aversion, they tend to behave more ethically. Therefore, it might be possible to leverage this fact to ensure ethical behavior (Rasmußen, 2015).

Amidst these investigations, guilt aversion has garnered more attention and emphasis compared to other factors influencing individuals' social behavior. According to the research by Balafoutas and Sutter (2017), guilt aversion has been identified as a significant factor impacting social behavior, drawing considerable attention in economic studies. The sense of guilt and the necessity to pay heed to guilt aversion arise within an individual when they perceive that their actions have diverged from the expectations of their transaction counterpart regarding potential gains (Charness and Dufwenberg, 2006).

In the absence of complete contracts, guilt aversion is considered a factor in reducing unethical risks. Therefore, assuming that interaction and reduced social distance intensify the effect of guilt aversion on individuals' behavior, successful communication within companies will not only convey information and strengthen individuals' sense of responsibility but also help them obtain a clearer image of others' expectations (Balafoutas and Sutter, 2017). Thus, determining an appropriate social distance among individuals and identifying and considering other factors influencing guilt aversion is of utmost importance to create suitable conditions for eliciting guilt aversion among individuals.

Although guilt aversion may significantly affect financial behavior (especially in specific societies and circumstances), an individual's ethical characteristics may influence guilt aversion. Individuals possess diverse ethical characteristics and, consequently, varying ethical ideologies. It is evident that individuals' moral judgment on what constitutes an unethical action and the consequent degree of guilt they could feel about the projection of an unethical action can differ among them based on their ethical ideology. That is why this study will incorporate the ethical ideology variable in examining guilt aversion's effect on individuals' financial behavior within the Iranian society to further refine the results.

This research aims to investigate how people with varying ethical ideologies react to a business-related topic. Understanding individuals' ethical traits seems essential in predicting their decisions. Thus, the study will examine how guilt aversion affects peoples' choices. Additionally, by examining the role of social distance, the research will explore how individuals' ethical ideologies impact the results.

Considering the challenges businesses face today, the main question of this research is whether individuals with dissimilar ethical ideologies display different responses to a business-related topic. Examining individuals' ethical characteristics is crucial for predicting their financial behavior. That is why this study will first examine the impact of guilt aversion on financial behavior and, subsequently, taking into account the effects of social distance, explore the influence of individuals' ethical ideologies on this relationship.

We must take into account the research conducted by Ellingsen et al. (2010), who deemed the results of Charness and Dufwenberg (2006) unreliable due to the creation of false consensus effects for the participants. In light of this research, we aimed to eliminate the potential issues by employing the dictator game in our experiment. This choice serves two purposes: firstly, it eliminates the false consensus effect as the dictator game will not allow for strategic responses; and secondly, according to Cason and Mui (1998), in other games, such as trust games, it is not entirely clear whether the change in behavior of the first mover is due to social effects or simply a strategy for obtaining higher gains.

In conclusion, the study of guilt aversion and its influence on financial behavior is highly relevant in the modern business landscape. Understanding the intricate relationships between guilt aversion, ethical ideologies, and financial behavior could potentially enable us to devise better processes and regulations. This research aims to contribute to behavioral economics and business ethics.

2. Literature review

Today, greater than ever before, the rapidly advancing landscape of economics, politics, and technology amplifies the importance of ethical considerations in individuals' decision-making (Rasmußen, 2015). These considerations are paramount in certain businesses, such as participatory budgeting (Brown et al., 2009), accounting reporting (Rasmußen, 2015), and financial consulting (Angelova and Regner, 2013). The discretionary power held by one of the parties involved (the principal decision-maker) can be considered as the main reason behind the said significance. Thus, examining individuals' behavior and the ability to predict it in such circumstances carries significant implications.

Classical economic theories emphasize the rationality of human behavior in decision-making and do not validate behavior based on beliefs (Dufwenberg, 2008). For instance, traditional game theory, as an extension of the classical view, envisions humans as rational beings making entirely logical decisions to maximize personal gain. They tend to ignore that human behavior is not always grounded in logic, and emotions sometimes drive decisions. Consequently, contemporary economists introduced a new branch of game theory called Behavioral Game Theory (Stevens, 2008). According to this theory and the subset of economic behavior theory known as Behavioral Finance, individuals' emotions sometimes influence their behaviour. The behavior also impacts society, and the decisions of others influence their decisions (Cartwright, 2018). The theories of fairness and the observer effect further emphasize that people take into account the well-being of others and what is considered as socially acceptable behavior and look to strike an optimal balance between personal interests and societal interests when making a decision (Cason and Mui, 1998).

Social interests necessitate that individuals, in decisions that impact others besides themselves,

consider the expectations of others and exhibit socially positive behavior (Balafoutas and Sutter, 2017). People with social preferences may ignore their own payoff to receive other people's satisfaction or for potential long-term achievements (Fehr and Charness, 2023).

2.1 Guilt aversion and financial behavior

In 2007, Batigalli and Dufwenberg proposed two theories for guilt aversion. Their first theory was based on disrupting the counterparty's expectations, suggesting that individuals lacking precise information about the first-order beliefs of others will be influenced by second-order beliefs. In other words, guilt-averse individuals will take into account their counterparty's expectations and make utmost efforts to fulfill them. Their second theory was based on simple guilt, implying that people consider the extent of disruption of their counterparty's expectations important. According to these theories, if guilt aversion is established in a society, there would not be a significant need to enforce strict regulations to control the behavior.

Ellingsen et al. (2010) argued that the examination of guilt aversion theory in previous research was incomplete. They named the presence of a false consensus effect as the culprit responsible. In their investigation, they developed a method to assess guilt aversion while mitigating the problem. Their method was based on eliciting first-order beliefs of the responder about the decision-maker's behavior in a dictator game. They achieved this by asking participants to guess the amount of money allocated by the dictator and establishing a reward for accurate guesses. The information showing the guesses was available to the dictator (the responder's first-order beliefs), but they themselves were unaware of this fact. The experiment was conducted through two trust games, and it was concluded that there was no correlation between the responder's guesses and the amount of money allocated by the decision-maker (dictator), thus rejecting the guilt aversion theory. According to their research, the false consensus effect is responsible for a significant portion of the relationship between second-order beliefs and behaviors, and the actual level of guilt aversion in previous studies is much less than measured.

Contrary to the previous theories regarding guilt aversion, Kawagoe and Narita (2014) proposed that guilt aversion does not affect individuals' decision-making. They defined guilt aversion as follows: People feel guilty when they betray the expectations of others, expectations that are often influenced by the behavior and promises of others. According to Kawagoe and Narita's theory, internal barriers within individuals are not powerful enough to maintain ethical behavior.

Balafoutas and Sutter (2017) investigated the effects of guilt aversion on individuals' decision-making under two conditions: the presence and absence of pre-game communication. Their hypothesis posited that if the parties interacted before the game commenced, the effects of guilt aversion would be more pronounced. This hypothesis stemmed from their belief that communication and interaction reduce social distance, leading to a heightened sense of responsibility for the decision-maker. To examine this, they utilized the dictator game to mitigate false consensus effects and strategic decision-making. These two scholars, critical of Ellingsen et al.'s approach in utilizing first-order beliefs of the responder, devised a novel method to assess guilt aversion, which involved revealing the previous transaction history of the second party to the decision-maker. They provided the decision-maker with a number portraying the average amount for the previous transactions of the second party. This number played the role of first-order beliefs for the participants and functioned as a mediator for the decision-makers' second-order beliefs. The variables employed in this study included the dictator's level of generosity, the average of previous transactions of the responder, the individuals' gender, and the period. Using regression analysis, Balafoutas and Sutter examined the impact of independent variables on the dependent variable, namely the dictator's level of generosity, and concluded that guilt aversion only influences individuals' behavior and level of generosity under

conditions of pre-game interaction and communication. In this study, individuals' gender and the period did not significantly affect the dictator's level of generosity and consequently, neither did the individual's guilt aversion. Cartwright et al. 2023 conducted an experiment using the public good game to examine individuals' guilt aversion. They categorized individuals into two groups: pro-social and pro-self. The results of their study confirmed guilt aversion. They sought the optimal conditions for ethical behavior and concluded that pro-social individuals exhibit the best behavior in a complete network (when individuals are aware of others' Social Value Orientation) while pro-self individuals demonstrate optimal behavior in an empty network (when individuals are only aware of their own Social Value Orientation).

According to research conducted so far, guilt aversion varies across different societies. While some studies have accepted the presence of guilt aversion and its impact on individuals' financial behavior (Rasmußen, 2015; Dufwenberg, 2008; Khalmetski, 2016; Attanasi et al., 2019; Cartwright et al., 2023), others have reported different interpretations (Güth et al., 2009; Kawagoe and Narita, 2014), attributing changes in behavior to factors such as the false consensus effect and group dependence. Furthermore, some researchers have confirmed the effect of guilt aversion on behavior only in specific conditions and with reduced social distance (Brosig et al., 2003; Beck et al., 2013; Bellemare et al., 2018).

This research falls under the category of applied studies in terms of its objective and belongs to the descriptive-correlational research approach. The current study aims to identify relationships between several variables, including guilt aversion, financial behavior, and ethical ideology.

This research aims to study guilt aversion's impact on individuals' financial behaviour within Iranian culture and society. To this end, the first hypothesis of the research is formulated as follows:

Hypothesis 1: Guilt aversion significantly impacts individuals' financial behavior.

By investigating the role of guilt aversion in financial decision-making in the particular society of Iran, this study looks to deepen our understanding of ethical decision-making and its implications in diverse social and cultural settings.

2.2 Ethical ideology and guilt aversion

Financial psychology emphasizes the influence of personality, culture, and investors' judgment on behavior. An important characteristic that shapes differences in ethical judgment is the variance in individuals' ethical ideologies (Forsyth and Berger, 1982). Forsyth introduced ethical ideology and its types in 1980 in light of the theories presented. Forsyth categorized individuals' ethical ideologies into four groups based on their idealism or relativism and their being idealistic or pragmatistic. These groups were named situationists, absolutists, subjectivists, and exceptionists. Forsyth also designed the EPQ questionnaire to measure the ethical position of individuals and determine which ethical groups they belong to. He argued that people’s ethical judgments might be influenced by their ethical ideologies, and individuals in different ideological groups might have different judgments about the ethicality of a behavior (Forsyth, 1981). Although ethical ideology did not lead to differences in ethical behavior in Forsyth and Berg's (1982) experiments, individuals' ethical judgments of their unethical actions differed based on their ethical ideologies. Depending on their idealism and relativism levels, individuals had varying self-evaluations (Forsyth and Berger, 1982).

Incorporating the concepts of ethical ideology and different ethical philosophies into the study of guilt aversion and financial behavior provides a richer understanding of the complexities underlying individuals' decision-making processes.

The primary reason for investigating ethical ideology is its ability to distinguish individual differences in ethical judgment. According to theory, individuals with different ethical ideologies will apply different logic to ethical judgments. Similar to skeptics, situationists base their ethical

judgments on the situation and different conditions. Subjectivists reject all presented theories and judge ethical behaviors based on their personal interests. Absolutists consider both the outcomes of actions and global ethical laws. Their behavior aligns more with deontologists. Exceptionists also consider global ethical laws but differ from absolutists in that they believe that under certain circumstances, it's permissible to prioritize the interests of some individuals over others (Barnett et al., 1994).

Exploring ethical ideologies sheds light on how people with various ethical beliefs might approach an ethical dilemma. This substantially influences their financial decisions and behavior. Understanding the interplay between ethical ideology, guilt aversion, and financial choices is critical for comprehending the complexity of human decision-making processes in financial contexts.

Because different ethical ideologies cause variations in judgments about the ethical nature of the behavior, it was inferred that the influence of different ethical ideologies could also be observable in people's business behavior. Barnett et al. (1994) was the first study on the impact of different ethical ideologies on business behavior. According to these scholars, as differing ethical ideologies lead to variations in individuals' reasoning about ethical issues, these differences will manifest in diverse business behaviors.

The ethical behavior of business students can serve as an indicator of their future behavior in the business world. In other words, if business students cheat or make specific behaviour judgments, their tendencies could symbolize their future business conduct (Allmon et al., 2000). Therefore, studying the behavior of business students can be utilized for further research.

In previous research, the role of various ethical ideologies of individuals (which can potentially moderate the outcomes of their behavior and the influence of behavior due to guilt aversion) has not received sufficient attention. The current study aims to incorporate the variable of individuals' ethical ideologies, examine the effect of guilt aversion on financial behavior in different situations, and consider various types of ethical ideologies. Based on this, the second hypothesis of the research is formulated as follows:

Hypothesis 2: Ethical ideology has a moderating role in the impact of guilt aversion on the financial behavior of individuals.

3. Methodology

Population: The statistical population of the current study consists of undergraduate students of the Faculty of Economics and Management at Tabriz University. According to the university's website statistics, the total number of these students is 440.

Sample Selection: The study sample was selected using random sampling, and a sample size of 52 individuals was chosen. The research sample was divided into two groups: dictators and recipients. Only the behavior of 26 dictator individuals was studied.

Data Collection Method: A library research method was employed to collect theoretical information and prevailing theories related to the research variables. Primary data was collected using a combination of active observation and questionnaires. The study was conducted in a laboratory environment, and the first data collection stage utilized the Z-tree software. The second stage was defining an individual's ethical ideology. The Forsyth Ethical Position Questionnaire (EPQ) was used to classify individuals based on their ethical ideologies. A 9-point Likert scale ranging from "Strongly Agree" to "Strongly Disagree" was used.

Validity and Reliability: Content validity and Cronbach's alpha were employed to establish the validity and reliability of the questionnaire.

Use of z-tree: The z-tree program aimed to ensure a safe social distance for participants. This was done to ensure that participants were not aware of the decisions made by the other party, maintaining

their anonymity. The z-tree program's design ensured that individuals had no knowledge of others' roles (dictator or recipient) and were unaware of their counterpart's identity. This design decision aimed to minimize participants' tendency to conform to societal norms and instead make decisions based on personal inclination and level of ethical sensitivity.

3.1 Conceptual Definitions of Variables

Guilt aversion is the sensation an individual feels when they perceive that they have deviated from another person's expectations about something they would gain. For example, in a financial transaction, when an individual is aware of their counterparty's expectations, guilt aversion might prevent them from giving less money than what is expected. Guilt-averse individuals feel unhelpful when others are dissatisfied with them (Ellingsen et al., 2010).

Financial Behavior: Any behavior related to money is considered financial behavior. Common financial behaviors include handling cash, credit, and savings behaviors.

Ethical Ideology: The ethical ideology of individuals is divided into four groups based on two components: idealism and relativism (Forsyth and Berger, 1982):

1) Idealistic and Non-Relativistic.
2) Pragmatic and Non-Relativistic.
3) Idealistic and Relativistic.
4) Pragmatic and Relativistic.

3.2 Operational Definitions of Variables

Guilt Aversion: This variable in the current study indicates how much the decision-making individual pays attention to the other party's expectations. In this research, the transaction history of the recipient person will be used as their expectation, and it will be provided to the decision maker or dictator. Using transaction history as a substitute for directly asking the second party about their expectations reduces the possibility of misrepresenting expectations. This means that the likelihood of the recipient person unrealistically presenting their expectations to influence the ethical sensitivity of the decision-making person is eliminated.

Financial Behavior: In this study, this variable is considered the decision maker's behavior. Its extent is measured based on the degree of monetary concession that the decision maker offers to the other party, taking into account the probability of considering the interests of others alongside their own interests.

Ethical Ideology: Using the EPQ questionnaire, the ethical ideology variable will be categorized into four distinct groups. Individuals will be classified into a group based on the level of idealism or relativism the questionnaire uncovers. The first ten questions (questions 1 to 10) examine idealism, and the rest (questions 11 to 20) will measure relativism.

3.3 Research method

In the first part of the study, a computer-based game was designed to collect data following the Balafoutas and Sutter (2017) methodology. The sample was divided into three groups, and participants engaged in the experiment on three separate days. Each day, 20 (or 12) participants played the game in four different stages.

We prearranged for the random division of the participants in the study using the Z-tree software. They were divided into two groups: dictators and recipients. The random selection operated in each stage of the experiment to select half of the individuals (10 or 6) and assign them to the first group to play the dictator role, while the rest of the participants were assigned to the second group and became recipients in the game. It should be noted that through the experiment, only the behaviors of the

members of the dictators' group were analyzed, and the data gathered from the behavior of the recipients had no effect on the outcome of the study.

Stage One: In this stage, consisting of 10 (or 6) rounds, each dictator had to divide 100 units of money between themselves and a randomly assigned recipient in each round. After the game, this 100-unit money was converted to a common currency using a specific coefficient, which participants knew. However, the coefficient value was not disclosed to prevent dictators from anticipating the impact of the allocated money on them. Each dictator interacted with each recipient only once in this stage, and all participants were aware of this.

Stage Two: Similar to the first stage, dictators had to divide 100 units of money with the recipient in each round. The only difference was that the average transactions of the recipient's earnings became apparent to the dictators from the second round onwards. Dictators could learn the average amount received by the recipient in previous rounds before making decisions. This average amount represented the recipient's expectations (first-order beliefs) and the dictator's second-order beliefs. If a dictator attempted to deviate from these expectations, it indicated their guilt aversion.

Stages Three and Four: These stages were similar to the first two stages, but with the addition that in stage four, starting from the second round, some dictators were allowed to engage in electronic chat communication with their respective recipients. This was designed to investigate the effect of actual and anticipated chats on participants' behavior.

In the second part of the research, the Forsyth Ethical Position Questionnaire (EPQ) was implemented within the Z-tree software to assess the ethical ideologies of the participants. People answered the 20 questions in the questionnaire, and the collected data was analyzed in relation to the outcomes of the first part of the game. This approach aimed to ensure that the questionnaire's questions did not influence participants' decision-making during the game.

3.4 Data Analysis and Models

Instead of directly questioning participants about their expectations from their counterparts, this experiment provided a history of the participant's transactions with their counterparts (dictators). This history served as an intermediary to assess the level of guilt aversion. Furthermore, the ethical ideology questionnaire divided participants into four groups based on their ethical ideologies. The impact of guilt aversion on participants' behavior with different ethical characteristics was examined.

Descriptive statistics and the Spearman correlation coefficient were employed to describe the characteristics of the population. Considering the binomial nature of the dependent variable and the presence of both continuous and categorical independent variables, logistic regression was employed to test the research hypotheses,

In the data analysis phase of our study, three different models were defined to study the behavioral changes in the participants. The first model aimed to investigate any changes in financial behavior, the second focused specifically on positive changes, and the third examined only negative changes in financial behavior. Next, A dependent variable was defined for each of these changes, which could take values between 0 and 1 (“1” if the desired change of the respected model was observed and “0” otherwise). Ultimately, the logistic regression analysis treated this defined variable as the virtual dependent variable.

4. Research findings and data

4.1 Validity and reliability of research instruments

The questionnaires must be tested for validity and reliability in any research to ensure their credibility. This study assessed content validity using the Content Validity Index (CVI) and the Content Validity Ratio (CVR). Initially, the questionnaire was provided to experts who confirmed its content validity. Lawshe's Content Validity Ratio was used to validate the questions, resulting in a

CVI score above 0.79 for all questions, indicating their content validity.

CVR, on the other hand, assesses the importance and correctness of the questions. It evaluates whether each question is essential or not. To determine the CVR, the questionnaire was reviewed by 10 expert individuals. The reliability of the questionnaire is another crucial aspect that needs to be evaluated for the questions to be considered accurate. The questionnaires used in this study include standardized ones, and since their reliability hasn't been previously tested within the Iranian sample, it was necessary to examine their reliability. The Cronbach's alpha method assessed the questionnaire's reliability, yielding acceptable results (0.74).

4.2 Results of hypothesis testing

In this study, a binary virtual variable was created to detect changes in the behavior of dictators. This variable was constructed based on four stages of the experiment:

a. No information is available to the dictator.
b. Making the average amount received transparent to the decision-maker (dictator).
c. No information is available.
d. Revealing the transaction history and the potential for chat and communication between the parties involved.

Relative to the baseline (first stage), the differences in the dictator's financial behavior in each stage were calculated using three different models:

1) The first model sought to determine the likelihood of changes in the dictator's financial behavior.
2) The second model aimed to examine the specific chance of positive changes.
3) The third model aimed to determine the probability of negative changes.

For each model, a binary virtual variable was defined. Firstly, a "diff1" was formed for the first model, where diff1 = 0 indicated no change in the dictator's behavior (relative to the baseline), and diff1 = 1 indicated the presence of a change. Likewise, the "diff2" variable was defined for the second model of our study, with diff2 = 1 meaning positive behavioral change and diff2 = 0 indicating other conditions (no change or negative change). Finally, in our third model, a "diff3" was created following the pattern, diff3 = 1 only if a negative change in a dictator’s behavior was identified and diff3 = 0 for else.

In this step, logistic regression was performed using the backward stepwise method to assess the likelihood of changes in individuals' financial behavior. The model included 8 main predictor variables (baseline proposal, chat, ethical ideology, gender, birthplace, field of study, age, and trading history) and 2 interaction variables (product of chat and trading history and product of ethical ideology and trading history). The logistic regression was applied step by step to the model, removing variables that were not influential in each step. The impact of other variables was evaluated without the presence of non-influential variables.

Table 1. Statistics of Financial Behavior Differences

Variable Name	Data Count	Minimum (Number of Observations)	Maximum (Number of Observations)	Mean	Standard Deviation	Variance	Skewness	Kurtosis
Diff1	708	0 (219)	1 (489)	0.69	0.463	0.214	0.827-	1.320-
Diff2	708	0 (439)	1 (269)	0.38	0.486	0.236	0.496	1.759-
Diff3	708	0 (488)	1 (220)	0.31	0.463	0.214	0.820	1.332-

Source: Researcher's calculations

The overall model, which included all variables, was statistically significant ($P < 0.001$, $\chi 2 = 35.73$), indicating that the model was able to recognize participants who experienced changes in their financial behavior. Based on the obtained results shown in Table 2, 3, the overall model described between 20.60% (Cox and Snell R-squared) and 29.00% (Nagelkerke R-squared) of the variance in financial behavior and correctly predicted the outcome in 75.60% of the cases. Moreover, it is noteworthy to point out the high sensitivity of this model, where there was a 91.82% accuracy in identifying the proportion of changes in individuals' financial behavior. Additionally, the specificity of the designed model was recorded to be 39.27%, demonstrating its capability to accurately identify the proportion of cases with no change in the behavior.

Table 2. Logistic Regression Results for Model 1 (diff1 as the dependent variable without main predictor variables)

Dependent Variable: diff1 / Logistic Regression

Variable Name	Variable Coefficient	Standard Error	Wald Statistic	Significance	Marginal Effect	Likelihood Ratio	95% Confidence Interval	
							Lower limit	Upper limit
1/boffer	06.34**	14.10	28.11	00.0	46.6	06.34**	1.45E+06	2.65E+23
1.boffer^2	52.33-**	91.9	46.11	00.0	36.6-	52.33-**	00.0	00.0
Chat2	92.4**	12.2	38.5	02.0	93.0	92.4**	14.2	79.8760
Ideology2	96.1-**	36.0	04.29	00.0	37.0-	96.1-**	07.0	29.0
City1	42.0*	24.0	05.3	08.0	08.0	42.0*	95.0	41.2
Field1	67.1**	51.0	89.10	00.0	32.0	67.1**	97.1	36.14
Field2	65.3**	84.0	80.18	00.0	69.0	65.3-**	41.7	50.201
age	44.0-**	01.0	05.23	00.0	08.0-	44.0-**	54.0	77.0
Transaction history*chat1	01.0-*	01.0	01.3	08.0	00.0-	01.0-*	98.0	00.1
Transaction history*chat2	11.0-**	05.0	57.5	02.0	02.0-	11.0-**	81.0	98.0
Transaction history*ideology 2	03.0**	01.0	62.6	01.0	00.0	03.0**	01.1	05.1
Transaction history*ideology 3	02.0**	01.0	17.5	02.0	00.0	02.0**	00.1	03.1
Intercept	61.8**	75.1	20.24	00.0	00.0	61.8**	_	_

*and ** indicate significance at 5% and 10% levels, respectively.

The values obtained for PPV (Positive Predictive Value) and NPV (Negative Predictive Value) indicate that if the likelihood of changes in financial behavior is high for a specific sample, the model can substantially confirm these probabilities at 77.15%. Even if the likelihood of ant changes is low, the model can confirm the probability to 68.25%. These findings highlight the model's ability to

predict changes and non-changes in individuals' financial behavior based on specific probabilities.

Table 3. Logistic Regression Model 1 in Details

Cox & Snell R Square	Nagelkerke R Square	Percentage correct	PPV	NPV	sensitivity	specificity
60.20%	00.29%	60.75%	15.77%	25.68%	82.91%	27.39%

The results obtained from Model 1 indicate that the main predictor variables, including base offer, chat, ethical ideology, field of study, and age, had a statistically significant contribution to the model. The interaction variables, chat1past, chat2past, pastideology2, and pastideology3, also played a significant role in the model. Based on the findings of Model 1, the final model is represented as follows:

Log(P(diff1=1)/(1-P(diff1=1))) = 13.333 + 35.129*(1/boffer) - 34.269*(1/boffer^2) + 4.498chat2 - 0.873ideology1 - 2.046ideology2 + 1.11ideology3 + 2.739field1 + 4.38field2 - 0.692age – 0.01(chat1past) - 0.101(chat2past) + 0.023(ideology2past) + 0.017(idelogy3*past)

Logistic regression was again applied to the dependent variable diff2 in this stage. The regression was conducted in a stepwise manner, similar to Model 1, and included 8 main predictor variables (base offer, chat, ethical ideology, gender, birthplace, field of study, age, and transaction history), along with 2 interaction variables (chat*transaction history and ideology*transaction history). Non-significant variables were gradually removed from the model, and the coefficients for the remaining variables were calculated. The overall model in this stage was statistically significant ($P<0.001$, $\chi2 =162.488$), indicating its ability to distinguish between participants who experienced positive behavioral changes in their financial behavior and those who did not.

Based on the results shown in Tables 4 and 5, the overall model explains between 20.50% (Cox and Snell R Square) and 27.90% (Nagelkerke R Square) of the variance in financial behavior. It correctly predicts 71.90% of cases. The sensitivity of the model is 43.49%, meaning it can accurately detect 43.49% of positive behavioral changes. Additionally, the model's specificity is 89.29%, demonstrating its ability to correctly predict 89.29% of no positive behavioral changes (negative or no change). The values of PPV and NPV show that if, for a specific sample, the probability of positive behavioral change is high, the model can confirm this with an accuracy of 71.34%. Moreover, the precision of the model would similarly be at 72.06% if the probability of positive behavioral change is low.

The results obtained from Test (2) indicate that six main predictor variables, namely base offer, chat, ethical ideology, birthplace, field of study, and age, along with two interaction variables (transactions history * chat2 and transactions history* ideology2), have shown statistically significant effects in the regression. Taking these influential variables and their coefficients into account, the final model can be represented by the following equation:

Log(P(diff2=1)/(1-P(diff2=1))) = 4.981 + 68.68*(1/boffer) - 62.47*(1/boffer^2) + 5.015chat2 - 1.506ideology2 - 0.435city1 + 1.508field1 + 1.666field2 - 0.368age - 0.128*(chat2past) + 0.038(ideology2*past)

Table 4. Logistic Regression Results for Model 2

Dependent Variable: diff1 / Logistic Regression								
Variable Name	**Variable Coefficient**	**Standard Error**	**Wald Statistic**	**Significance**	**Marginal Effect**	**Likelihood Ratio**	**95% Confidence Interval**	
							Lower limit	**Upper limit**
1.boffer	68.65**	01.9	16.52	00.0	71.15	35.3	6.08E+20	1.84E+36
1.boffer^2	47.62-**	85.8	80.49	00.0	95.14-	00.0	00.0	00.0
Chat2	02.5**	91.1	92.6	00.0	20.1	71.150	59.3	90.6322
Ideology2	51.1-**	44.0	56.11	00.0	36.0-	22.0	09.0	53.0
City1	44.0-**	21.0	18.4	04.0	10.0-	65.0	43.0	98.0
Field1	51.1**	45.0	18.11	00.0	36.0	52.4	87.1	94.10
Field2	67.1**	48.0	93.11	00.0	40.0	29.5	06.2	62.13
age	37.0-**	08.0	03.23	00.0	08.0-	69.0	60.0	80.0
Transaction history*chat2	13.0-**	05.0	98.7	00.0	03.0-	88.0	80.0	96.0
Transaction history*ideology2	04.0**	01.0	23.10	00.0	00.0	04.1	01.1	06.1
Intercept	98.4**	44.1	89.11	00.0	19.1	67.145	_	_

*and ** indicate significance at 5% and 10% levels, respectively.

Table 5. Logistic Regression Model 2 in Details

Cox & Snell R Square	**Nagelkerke R Square**	**Percentage correct**	**PPV**	**NPV**	**sensitivity**	**specificity**
50.20%	90.27%	90.71%	34.71%	06.72%	49.43%	29.89%

Finally, logistic regression was once again repeated backwards stepwise, but in this case, the dependent variable was the negative change in individuals' financial behavior (diff3). Similar to previous stages, the main predictor and interaction variables were considered (including 8 main predictor variables: base offer, chat, ethical ideology, gender, birthplace, field of study, age, and transaction history, along with 2 interaction variables: chat * past and ideology * past). The overall model in this stage was statistically significant ($P<0.001$, $\chi 2 = 151.312$), indicating its ability to distinguish between participants whose financial behavior changed negatively and others.

According to the results demonstrated in Table 6, 7, the overall model explains between 17.80% (Cox and Snell R Square) and 25.10% (Nagelkerke R Square) of the variance in individuals' financial behavior. It correctly predicts 70.90% of cases. The sensitivity of the third model is 36.36%, which indicates its ability to accurately detect 36.36 percentage of negative behavioral changes. Additionally, the model's specificity is 86.47%, demonstrating its ability to correctly predict this percentage of no negative behavioral changes (positive or no change). The values obtained for PPV and NPV show that if the probability of negative behavioral change is high for a specific sample, the model can confirm this with an accuracy of 54.79%. Similarly, if the probability of negative behavioral change is low, the model can confirm this with an accuracy of 75.09%.

The text discusses the results obtained from Model (3) analysis and their implications. It starts by mentioning that due to the possibility of the receiver's transaction history shaping their second-order beliefs about the dictator's expectations, the variable "transaction history" is considered a second-order belief in the model. If these second-order beliefs positively change individuals' financial behavior, it can be inferred that risk aversion has significantly impacted their behavior. However, since the transaction history variable did not significantly impact any of the three presented models

at a 90% confidence level, the null hypothesis of no effect of risk aversion on financial behavior cannot be rejected, and the proposed claim is not acceptable.

Table 6. Logistic Regression Results for Model 3

Dependent Variable: diff1 / Logistic Regression								
Variable Name	**Variable Coefficient**	**Standard Error**	**Wald Statistic**	**Significance**	**Marginal Effect**	**Likelihood Ratio**	**95% Confidence Interval**	
							Lower limit	**Upper limit**
1/boffer	61.46-**	09.9	28.26	00.0	74.5-	00.0	00.0	00.0
1.boffer^2	63.36**	89.15	31.5	02.0	51.4-	8.07E+15	85.240	2.70E+29
City1	01.1**	20.0	81.25	00.0	13.0	75.2	86.1	06.4
Field2	90.0**	37.0	97.5	02.0	11.0	46.2	20.1	07.5
Transaction history*chat2	02.0**	00.0	22.7	00.0	00.0	02.1	00.1	03.1
Transaction history*ideology2	03.0-**	00.0	01.11	00.0	00.0	97.0	96.0	99.0
Intercept	07.6**	60.2	45.5	02.0	80.0	82.431	_	_

*and ** indicate significance at 5% and 10% levels, respectively.

Table 7. Logistic Regression Model 3 in Details

Cox & Snell R Square	Nagelkerke R Square	Percentage correct	PPV	NPV	sensitivity	specificity
80.17%	10.25%	90.70%	79.54%	09.75%	36.36%	47.86%

Furthermore, considering the relationship between the parties prior to the dictator's decision, the following results are obtained: The interaction variable chat1*past showed a significant role in Model (1), indicating that the transaction history in the presence of a chat before the decision has a negative effect on changing individuals' financial behavior. In other words, when individuals know their transaction history and chat with the other party, they are less likely to change their proposed offer in the baseline stage. However, this variable did not significantly affect Models (2) and (3). Thus, because second-order beliefs did not result in a positive change in individuals' behavior, the null hypothesis regarding the absence of risk aversion's effect on financial behavior in the presence of pre-game communication remains unrefuted, and the proposed claim is not accepted.

It was observed that this variable had a negative effect in Models (1) and (2) and a positive effect in Model (3). Therefore, it can be concluded that the anticipation of chat before the game did not positively influence the second-order beliefs of the decision maker and, in turn, their behavior. As a result, the null hypothesis regarding the absence of risk aversion's effect on financial behavior remains unrefuted, and the proposed claim is not accepted.

Regarding the role of moral ideology as a moderator in the impact of risk aversion on individuals' financial behavior, considering that the interaction variable "ideology*transaction history" is significant in relation to the subjectivists d and exceptions groups, it can be concluded that the effect of transaction history in these groups differs from the baseline group. Therefore, moral ideology is accepted as a moderator in the relationship between risk aversion and financial behavior.

Furthermore, the results indicate that the interaction variable "ideology1*transaction history" did not significantly affect any of the presented models. Thus, absolutists are not expected to differ in risk aversion compared to situations. On the other hand, the results show that the interaction variable "moral ideology2*transaction history" had a positive effect in Models (1) and (2) and a negative effect

in Model (3). Therefore, it is observed that transaction history, when considering moral ideology oriented towards the subjectivists, has played a significant role in positive changes in individuals' behavior. The relationship between risk aversion and financial behavior among these individuals is stronger than the baseline or situationist groups.

5. Conclusion

The current study's primary objective was to investigate guilt aversion's impact on individuals' financial behavior while considering the role of ethical ideology as a moderating variable. Initially, based on traditional economic theories, it seemed that individuals would demonstrate selfish behavior, focusing solely on their own interests. Accordingly, if they were asked to divide a specified amount of money between themselves and the other party, they would allocate the entire amount to themselves. However, the results of previous research did not confirm this assumption. According to prior research, individuals' behavior does not align entirely with traditional economic theories. Instead, individuals consider social preferences in their choices (Rasmußen, 2015).

In this study, individuals did not allocate a minimum of 0 and a maximum of 100 to the counterparty, indicating that their behavior is not completely rational (based on traditional economic theories that benefit themselves) or completely honest (benefiting the counterparty). Therefore, it is observed that individuals, in addition to economic interests, consider their social interests in the financial distribution between themselves and others. Among the potential factors influencing individuals' financial behavior, guilt aversion is examined in this study, which looks at the financial behavior of individuals influenced by guilt aversion. The study employed logistic regression to analyze the changes in individuals' financial behavior based on the research variables to achieve this.

In this regard, three models were utilized for research goals. The first model related to the overall change in individuals' financial behavior, the second referred to positive change, and the third concerned the negative changes. The research goals were divided into two main categories: primary and secondary goals. Taking into account the primary goal of investigating guilt aversion's impact on individuals' financial behavior, the results demonstrated that guilt aversion would not influence individuals' financial behavior. Because the awareness of the counterparty's expectations before decision-making did not lead to any difference in the dictator's decision making. The result indicates that guilt aversion does not affect financial behavior without communication. This finding is similar to previous studies such as those of Kawagoe and Narita (2014) and Balafoutas and Sutter (2017). Still, it differs from the findings of Charness and Dufwenberg (2006) and Khalimetski (2016), confirming guilt aversion's impact even without communication between parties.

In light of the secondary objectives of the research, it was observed that in cases where there is a connection between the transaction parties, awareness of the counterparty's expectations leads to a negative change in the decision-maker's behavior. This observation contradicts the definition of guilt aversion. Therefore, it can be concluded that in the current sample, individuals' decisions are not influenced by guilt aversion, even in the presence of interactions and reduced social distance with the counterparty. Additionally, it was observed that ethical ideology moderates the relationship between guilt aversion and financial behavior. Chatting among subjectivists positively influenced decision-making, and they made more moral decisions after chatting with the other party. Given that none of the previous studies has examined the impact of individuals' ethical ideology on the connection between guilt aversion and financial behavior, the results obtained are not comparable with any past studies.

Many human behaviors in financial relationships and preference-based decisions adhere to the theory of guilt aversion. Awareness of the level of guilt aversion among individuals in a society can play a crucial role in managing that society. Managers should determine their relationships with

members of the community and the nature of interactions among community members based on the level of individuals' guilt aversion. For example, in a company where employees are selected from a community whose guilt aversion has been determined based on past research, the extent of the impact of guilt aversion on individuals depends on their awareness of the counterpart. It is advisable to enhance communication between individuals, and employees should establish stronger connections with their managers, colleagues, and supervisors.

Moreover, in a company where employees do not exhibit guilt aversion-based behavior, managers should establish stricter and more rigorous regulations regarding employees' tasks to control their behavior and prevent unethical conduct. They should also exercise increased supervision over their behavior.

In conclusion, understanding guilt aversion can have significant implications for managing social relationships and making informed decisions. Managers should tailor their strategies based on the guilt aversion tendencies of individuals, fostering better communication and enhancing ethical behavior in organizations.

Similar to other research, the current study has certain limitations regarding research methodology and data collection. The study was conducted in a laboratory environment within the university. Despite the attempt to keep the parties unaware of each other and the experiment organizers, individuals may have been somewhat concerned about negative social judgments related to their decision-making, causing their behavior to not purely reflect the extent of their sense of responsibility and guilt aversion. Another limitation was the number of participants in each stage, as the relatively smaller number of participants in each stage might have made individuals doubt the confidentiality of their identity in front of others. Additionally, the selected sample only comprised a limited segment of the overall population (consisting of undergraduate students from the Faculty of Economics and Management). Therefore, the results of this study can only be applied to societies where the characteristics of individuals in that community are similar to the characteristics of the current research sample.

In conclusion, it is recommended that, in addition to replicating this study to confirm the results in different environments and conditions, further research should explore the nature and scope of the impact of other potential variables.

Based on the current study's findings, which indicated that the impact of guilt aversion was not confirmed in the overall sample and this impact differed concerning individuals' ethical ideology, it can be stated that in cases where company managers are not aware of their employees' ethical ideologies or when the community of employees consists of individuals with varying ethical ideologies, they should establish stricter rules and standards for their employees' financial decisions. Reducing the social distance between the parties will not positively influence their behavior in such communities. However, if most individuals in a group were subjectivist, communications before the financial decision making would positively affect the decision makers' ethical behaviour.

References

1. Allmon, D. E., Page, D. and Rpberts, R. (2000). Determinants of perceptions of cheating: Ethical orientation, personality and demographics. *Journal of Business Ethics*, 23(4), pp. 411-422. http://dx.doi.org/10.1023/A:1006087104087
2. Angelova, V. and Regner, T. (2013). Do voluntary payments to advisors improve the quality of financial advice? An experimental deception game. *Journal of Economic Behavior & Organization*, 93, pp. 205-218. https://doi.org/10.1016/j.jebo.2013.03.022
3. Attanasi, G., Rimbaud, C. and Villeval, M. C. (2019). Embezzlement and guilt aversion. *Journal of Economic Behavior & Organization*, 167, pp. 409-429.

https://doi.org/10.1016/j.jebo.2019.02.002
4. Balafoutas, L. and Sutter, M. (2017). On the nature of guilt aversion: Insights from a new methodology in the dictator game. *Journal of Behavioral and Experimental Finance*, 13, pp. 9-15. https://doi.org/10.1016/j.jbef.2016.12.001
5. Barnett, T., Bass, K. and Brown, G. (1994). Ethical ideology and ethical judgment regarding ethical issues in business. *Journal of Business Ethics*, 13(6), pp. 469-480. https://doi.org/10.1007/BF00881456
6. Beck, A., Kerschbamer, R., Qiu, J. and Sutter, M. (2013). Shaping beliefs in experimental markets for expert services: Guilt aversion and the impact of promises and money-burning options. *Games and Economic Behavior*, 81, pp. 145-164. https://doi.org/10.1016/j.geb.2013.05.002
7. Bellemare, C., Sebald, A. and Suetens, S. (2018). Heterogeneous guilt sensitivities and incentive effects. *Experimental Economics*, 21(2), pp. 316-336. https://doi.org/10.1007/s10683-017-9543-2
8. Brosig, J., Weimann, J. and Ockenfels, A. (2003). The effect of communication media on cooperation. *German Economic Review*, 4(2), pp. 217-241. https://doi.org/10.1111/1468-0475.00080
9. Brown, J. L., Evans III, J. H. and Moser, D. V. (2009). Agency theory and participative budgeting experiments. *Journal of Management Accounting Research*, 21(1), pp. 317-345. 10.2308/jmar.2009.21.1.317
10. Cartwright, E. (2018). Behavioral economics. Routledge. (3rd ed.). London, U.K.
11. Cartwright, E., Chai, Y. and Xue, L. (2023). Are My Team Members Pro-Social? Information About Social Value Orientation Influences Cooperation in Public Good Games. Information About Social Value Orientation Influences Cooperation in Public Good Games. https://dx.doi.org/10.2139/ssrn.4628488
12. Cason, T. N. and Mui, V. L. (1998). Social influence in the sequential dictator game. *Journal of Mathematical Psychology*, 42(2-3), pp. 248-265. https://www.sciencedirect.com/science/article/abs/pii/S0022249698912135
13. Charness, G. and Dufwenberg, M. (2006). Promises and partnership. *Econometrica*, 74(6), pp. 1579-1601. http://hdl.handle.net/10.1111/j.1468-0262.2006.00719.x
14. Charness, G. and Rabin, M. (2002). Understanding social preferences with simple tests. *The Quarterly Journal of Economics*, 117(3), pp. 817-869. https://doi.org/10.1162/003355302760193904
15. Dufwenberg, M. (2008). Psychological games. *The New Palgrave Dictionary of Economics*, 6, pp. 714-717. http://dx.doi.org/10.1057/978-1-349-95121-5_2116-1
16. Ellingsen, T., Johannesson, M., Tjøtta, S. and Torsvik, G. (2010). Testing guilt aversion. *Games and Economic Behavior*, 68(1), pp. 95-107. https://doi.org/10.1016/j.geb.2009.04.021
17. Fehr, E. and Charness, G. (2023). Social preferences: fundamental characteristics and economic consequences. Available at SSRN 4464745. University of California, Santa Barbara. https://dx.doi.org/10.2139/ssrn.4464745
18. Forsyth, D. R. (1980). A taxonomy of ethical ideologies. *Journal of Personality and Social Psychology*, 39(1), pp. 175. https://psycnet.apa.org/doi/10.1037/0022-3514.39.1.175
19. Forsyth, D. R. (1981). Moral judgment: The influence of ethical ideology. *Personality and Social Psychology Bulletin*, 7(2), pp. 218-223. https://psycnet.apa.org/doi/10.1177/014616728172006
20. Forsyth, D. R. and Berger, R. E. (1982). The effects of ethical ideology on moral behavior. *The Journal of Social Psychology*, 117(1), pp. 53-56. https://doi.org/10.1080/00224545.1982.9713406
21. Güth, W., Ploner, M. and Regner, T. (2009). Determinants of in-group bias: Is group affiliation mediated by guilt-aversion?. *Journal of Economic Psychology*, 30(5), pp. 814-827. https://doi.org/10.1016/j.joep.2009.07.001
22. Kawagoe, T. and Narita, Y. (2014). Guilt aversion revisited: An experimental test of a new

model. *Journal of Economic Behavior & Organization*, 102, pp. 1-9. 10.2139/ssrn.1704884
23. Khalmetski, K. (2016). Testing guilt aversion with an exogenous shift in beliefs. *Games and Economic Behavior*, 97, pp. 110-119. https://doi.org/10.1016/j.geb.2016.04.003
24. Rasmußen, A. (2015). Reporting behavior: a literature review of experimental studies. *Central European Journal of Operations Research*, 23(2), pp. 283-311. https://doi.org/10.1007/s10100-014-0379-y
25. Stevens, S. P. (2008). Games people play: Game theory in life, business, and beyond. *Great course*.