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경영학 석사 학위논문

The Salience of Economic Inequality  
Optimistically Biases Financial  
Risk Perception by Eliciting Anger

경제적 불평등의 현저성과  
낙관적 재무위험평가의 관계  
- 분노의 감정을 중심으로 -

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김진명

THE SALIENCE OF ECONOMIC INEQUALITY  
OPTIMISTICALLY BIASES  
FINANCIAL RISK PERCEPTION BY ELICITING ANGER

BY

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## **ABSTRACT**

# **The Salience of Economic Inequality Optimistically Biases Financial Risk Perception by Eliciting Anger**

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The issue of economic inequality has grown in prominence in recent years. Consequently, consumers are likely to be reminded of economic inequality with increasing frequency—by traditional or social media, interpersonal or intergroup interactions, or situational or environmental cues. Yet little research has investigated the effect of economic inequality on consumer behavior or psychology. The present research seeks to address this gap in research by exploring how the salience of economic inequality affects consumers' perception of risk in the financial domain, an important

domain for promoting consumer welfare. Based on a review of relevant literature, this research proposes that economic inequality will be perceived as unjust and its salience will induce anger, which in turn will lead consumers to perceive lower levels of financial risk. Indeed, the results from three studies show (1) that anger is the predominant emotional response to economic inequality, and (2) that the salience of economic inequality induces anger and (3) reduces perception of financial risks (i.e., optimistically biases financial risk perceptions).

**Keywords:** inequality, financial risk, risk perception, anger, injustice, bias, social dominance orientation

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# INTRODUCTION

The issue of economic inequality has grown in prominence in recent years. Economic inequality was the critical issue that set off Occupy Wall Street movement (OccupyWallStreet), the topic of Thomas Piketty's bestseller (2014), and the focus of Bernie Sanders presidential campaign (Memoli, 2015). Indeed, economic inequality has emerged as a key issue in 2016 presidential campaign (Lauter, 2015), and if there is one thing that all 2016 presidential contenders across party lines would agree on, it may be that economic inequality in America is a problem (Scheiber, 2015). As economic inequality has grown in prominence, consumers are likely to be reminded of economic inequality with increasing frequency—by traditional or social media, interpersonal or intergroup interactions, or situational or environmental cues. If economic inequality becomes salient in consumers' minds, what would be the likely consequences? Will the salience of economic inequality have any effect on consumer psychology or behavior?

The present research aims to address these questions. Specifically, this research explores how the salience of economic inequality (encompassing both income and wealth inequality) affects consumers' perception of risk in the financial domain. This research proposes that

salience of economic inequality will induce anger in consumers, which in turn leads to lower perception of risk in the financial domain. This research will also explore a moderator for the proposed effect, namely social dominance orientation. In the following section, relevant literatures supporting these propositions are reviewed.

## **THEORETICAL BACKGROUND**

### **Economic Inequality Is Perceived as Unjust**

People may perceive the current level of economic inequality as unjust, because it violates their sense of distributive justice. According to justice theory, distributive justice is achieved when people view that the allocation of outcomes among themselves is fair (Tyler, 2011). If they perceive that the allocation is unfair, their sense of distributive justice will be violated. As a recent survey by Gallup found that 63% of Americans viewed the current distribution of money and wealth as unfair and felt that the money and wealth should be more evenly distributed (Newport, 2015), the majority of Americans are likely to perceive injustice in the current level of economic inequality.



Similar to justice theory, inequity theory (Adams, 1965) combined with research findings on Americans' perception of wealth distribution also suggests that people will perceive injustice when they see the current economic inequality for what it is. In developing his theory of inequity, Adams notes that injustice will be felt when there is a "discrepancy between what is perceived to be and what is perceived should be" (Adams, 1965). So, if people view that the current distribution of economic resources is different from what it should be, they will feel a sense of injustice.

Indeed, research by Norton and Ariely (2011) demonstrates such discrepancy. In a survey with a nationally representative sample of Americans ( $N = 5,522$ ), Norton and Ariely asked respondents to indicate what percent of wealth they thought each of the five quintiles in the United States ideally "*should* hold" (ideal distribution). They also asked respondents to indicate what percent of wealth they thought each of the quintile actually held (estimated distribution). Averaging respondents' answers and comparing their ideal and estimated distributions with the actual distribution produced two surprising discrepancies (see figure 1).

The first discrepancy, which should induce the feeling of injustice, is between the ideal wealth distribution (how Americans think wealth *should* be distributed among themselves) and the estimated wealth distribution

(how Americans perceive wealth is distributed among themselves).

Although people thought the wealthiest quintile should possess only 32% of the total wealth, they estimated that the top quintile possessed 59% (Norton & Ariely, 2011). This discrepancy between what is perceived should be (ideal distribution) and what is perceived to be (estimated distribution) is substantial at 27 percentage points, and it will likely lead people to perceive injustice.

What is more striking, however, is the second discrepancy between the ideal wealth distribution and the actual wealth distribution (see figure 1). Although people thought that the wealthiest quintile deserved only 32% of total wealth, the quintile held a whopping share of 84% of total wealth in reality. The bottom two quintiles, on the other hand, held only 0.1% and 0.2% of the wealth respectively (too minuscule to even show up in the chart), even though people thought they deserved much more, about 11% and 13%, respectively (Norton & Ariely, 2011). Thus, when people are reminded of the current level of economic inequality—e.g., the bottom two quintiles holding only 0.3% of total wealth while the top quintile holds 84%—and inequality becomes salient in people’s minds, they are even more likely to perceive injustice, because the discrepancy between what is perceived

should be and what is perceived to be is even greater, in reality, than the discrepancy they otherwise would have had in mind.

Empirical findings also support the idea that economic inequality will be perceived as unjust. In their research, Van den Bos and colleagues presented participants with equitable or inequitable economic outcomes and asked them to judge the extent to which their outcomes were just or unjust (Van den Bos, Peters, Bobocel, & Ybema, 2006). Specifically, participants were told that they would work on a task (answering questions about general knowledge) with another person and that if both performed well, they would receive bonuses which will be divided between them. All participants were told that they performed equivalently well as the other person, but some received more or less bonuses than the other person, while others received the same amount of bonuses. When asked to judge how just or unjust, as well as how fair or unfair, they perceived the division of bonuses to be, participants who received more or less than the other person judged the division to be more unjust than those who received the equal amount of bonuses as the other person. These results show that unequal economic outcomes lead to judgment of injustice. Similarly, economic inequality, essentially a state in which economic outcomes among people are unequal, will be judged as unjust to the extent that it is severe. Notably,

both participants that received more and participants that received less than the other person perceived their outcomes as equally unjust, suggesting that perception of justice regarding economic inequality may not be moderated by the perceiver's advantageous or disadvantageous economic outcome (e.g., income or wealth) relative to others. In line with this argument, Norton and Ariely (2011) note that among people of different income levels—among *both the poor and rich* Americans—there was “more consensus than disagreement” about the desirability of more equal distribution of wealth (see the bottom section of figure 1).

### **Injustice in Economic Inequality Induces Anger**

How would people respond to economic inequality, which they perceive to be unjust? Theories in social psychology suggest that the predominant emotional response to injustice is anger. Homans (1961) wrote that the more distributive justice is violated to one's disadvantage, the more likely one is to display anger. Similarly, Walster and colleagues (1973) noted in their elaboration of equity theory that when individuals receive less than they deserve, they feel distress “usually in the form of anger.” Contemporary researchers Keltner and Lerner also link injustice with anger

when they interpret that anger is associated with the action tendency to “restore justice” (Keltner & Lerner, 2010).

Much empirical research confirms these theoretical proposals by demonstrating that injustice indeed induces anger. For example, Clayton (1992) asked participants to imagine themselves in three situations of injustice and to record their probable thoughts and behaviors. In all three unjust situations, participants’ most common response was that of anger and frustration. Of the three situations, the first most closely resembled economic inequality, as it described inequitable outcomes for the same work (lower test grade for the same answer). As this situation induced anger in 30% of participants, injustice in economic inequality will likely induce anger in people. Focusing on naturally-occurring injustice, Mikula (1986) asked respondents to describe their feelings after recalling an event in which they experienced injustice. He found that anger was the most frequently experienced emotion. Employing what seems to be a reverse procedure, Mikula and colleagues asked respondents to recall situations in which they experienced anger and other emotions and asked them the extent to which the situations were unjust or unfair (Mikula, Scherer, & Athenstaedt, 1998). They found that situations evoking anger were more frequently perceived as

unfair or unjust than situations evoking other emotions. Together these empirical findings suggest that injustice in economic equality induces anger.

## **Economic Inequality Induces Anger through Envy and Inferiority**

Perhaps a more complete portrayal of the relationship between inequality and anger is found in Leach's writing (2008). Leach argues that inequality leads to anger through three distinct paths: injustice, envy, and inferiority (see figure 2). Since the path from inequality to anger through injustice is already discussed at length in the previous section, this section focuses on the latter two paths. In describing the path through envy, Leach argues that frustrated desire for a reward possessed by another party that one feels one deserves may cause anger at oneself (for failing to gain the reward), at the fortunate, or at the system of distribution (Leach, 2008). An illustrative example of such anger via envy at the fortunate is provided in Dawes and colleagues' research on egalitarian motives in humans (Dawes, Fowler, Johnson, McElreath, & Smirnov, 2007). Dawes et al. manipulated the level of income inequality (high vs. low) among participants and measured the extent to which they felt angry or annoyed toward the top earner. In the low-inequality scenario, the participant read that he or she

received 19 tokens, while the other three participants in the group received 17, 21, and 22 tokens. In the high-inequality scenario, the participant received 23 tokens, while the other three received 21, 25, and 37 tokens. In both low- and high-inequality condition, participants indicated how angry and annoyed they felt (1 = “not at all”; 7 = “very”) toward the participant who had 22 tokens (3 more than him/herself) or 37 tokens (15 more than him/herself), respectively. The results showed that participants in the high-inequality (vs. low-inequality) condition felt more anger and annoyance toward the top earner and were *more likely* to feel at least some anger (52% vs. 27%) and annoyance (75% vs. 46%) toward the top earner. This finding demonstrates how economic inequality may induce anger via envy.

Inequality-based anger at the fortunate may also arise via inferiority. Leach’s last path from inequality to anger suggests that inferiority implied by inequality may induce pain, which may be externalized as anger at the fortunate—*ressentiment* (Leach, 2008; Nietzsche, 1887/1967). That inferiority may lead to anger is supported by Tangney and colleagues’ finding that chronic shame, an inferiority-based emotion, may lead to anger (Tangney, Wagner, Fletcher, & Gramzow, 1992). Likewise, Averill’s finding that loss of pride, a concept closely related to inferiority, was a

common cause of anger (Averill, 2012) also supports the idea that inferiority implied by inequality may induce anger.

### **Predominance of Anger in Response to Economic Inequality**

Although the research reviewed thus far suggests that emotions other than anger may also be induced by inequality or injustice, most seems to agree that anger is the predominant emotional response to inequality. Synthesizing some of the research reviewed earlier (Clayton, 1992; Mikula, 1986), Miller (2001) notes that people's "most common response to injustice is anger." Indeed, in Mikula's research (1986), anger was a more common response to unjust treatment than disappointment, surprise, stress, or depression. In addition, research by Mikula et al. (1998) revealed that situations perceived as unjust were more strongly associated with the emotion of anger than other emotions, such as disgust, sadness, fear, shame, guilt, and joy. Finally, despite the acknowledgement in reviewing Leach's theory that inequality may lead to envy, an emotion distinct from anger with different appraisal and action tendencies (Keltner & Lerner, 2010), anger may still be considered the predominant emotional response to inequality because anger is one of two core elements of envy (Leach, 2008). Thus, although previous research shows that inequality and injustice may induce



various emotions other than anger, assessing the effects of all such emotions is beyond the scope of this research. Therefore, this research focuses on anger as the predominant emotional response to economic inequality and explores the effect of inequality-induced anger on consumers' risk perception.

### **Anger and Risk Perception**

It now seems appropriate to ask the next question: what would be the effect of perceiving economic inequality and the resultant anger on consumers? Previous research on feelings and consumer decision making suggests that anger may alter consumers' perception of risk. To understand exactly how anger affects consumers' perception of risk, relevant studies are reviewed separately in detail.

In studying cognitive appraisal dimensions that differentiate various emotions, Smith and Ellsworth (1985) found that anger was characterized by tendency to perceive certainty and individual control in the anger-provoking situations. Specifically, Smith and Ellsworth asked participants to recall their experiences of anger and other emotions (15 in total) in detail and to rate how the emotional experiences were characterized by eight cognitive appraisal dimensions, such as pleasantness, control, and certainty.

For example, to examine the emotions' cognitive appraisal dimension of control, they asked participants questions, such as "To what extent did you feel that you had the ability to influence what was happening in [the] situation?" For the dimension of certainty, they asked questions such as "How well could you predict what was going to happen in [the] situation?" and "How uncertain were you about what was happening in [the] situation?" The analyses of participants' ratings to these questions revealed that anger was characterized by high perception of certainty and individual control (C. a Smith & Ellsworth, 1985). These results suggest that when individuals are angry, they are likely to feel a sense of certainty about and control over the anger-provoking situation.

Based on Smith and Ellsworth's research (1985), Lerner and Keltner proposed the Appraisal Tendency Framework (Lerner & Keltner, 2000) as a theory of how specific emotions influence consumer judgments and demonstrated that anger can optimistically bias consumers' risk perception. In proposing their model, they argued that each emotion activates an appraisal tendency—the "cognitive predisposition to appraise future events in line with" the appraisal patterns that gave rise to the emotion—and that such appraisal tendency colors subsequent judgments even in domains unrelated to the emotion-eliciting event (Lerner & Keltner, 2000). Thus,

they hypothesized that anger, with its appraisal tendency to perceive future events as predictable and under personal control, would lead individuals to perceive less risk in a new situation. Indeed, they provided empirical support for their hypothesis: participants who were dispositionally more (vs. less) angry gave lower estimates of annual fatalities from events such as brain cancer, strokes, and floods. Presumably, participants who were dispositionally more (vs. less) angry tended to appraise the “new” events with a greater sense of certainty and individual control, which in turn led them to perceive less risks in the new events.

After Lerner & Keltner’s seminal work (2000), further research contributed empirical support to the proposition that anger leads to more optimistic risk perception. Lerner and Keltner (2001) showed that not only dispositional anger, but also induction of anger through experimental manipulation leads to more optimistic perception about future life events (e.g., marrying someone wealthy or contracting a sexually-transmitted disease), and that appraisal tendency mediates the effect. In line with this finding, Lerner and colleagues (2003) tested the same hypothesis in a field experiment by examining the relationship between Americans’ anger in response to the September 11 Attacks and their risk perception. They measured anger of the nationally representative sample of Americans ( $N =$

973) with the Desire for Vengeance Scale (Skitka, 2001) the week after the attack and then measured their perception of both terror-related risk (e.g., being hurt in a terror attack) and non-terror related risk (e.g., getting the flu) two months later. Their results showed that the more angry Americans were the week after the attack, the less risk they perceived in both the terror- and non-terror related domains even after the two months' time has passed. In the same research, Lerner and colleagues also manipulated emotions of anger and fear, and as expected, manipulating anger (vs. fear) led to lower perception of risk. Together these findings support the present research's proposition that anger induced by economic inequality will lead to lower perception of risk by consumers.

### **Risk Perception in the Financial Domain**

Risk perception may be important for consumers in various domains, but which domain should the present research focus on? Weber and colleagues (2002) identified five domains of risk while developing a scale measuring risk perceptions and risk behaviors: financial (investing and gambling), health/safety, recreational, ethical, and social domains. Of these, the present research will specifically focus on the financial domain, as it is the domain most relevant to the issue of economic inequality. Focusing on

the financial domain will also be a proper response to Moss and colleagues' call (Moss, Thaker, & Rudnick, 2013) for more empirical research on the relationship between economic inequality and individual decision making related to consumption, savings, and risk-taking.

### **Social Dominance Orientation as a Moderator**

When consumers perceive economic inequality, will all of them respond with anger? Not likely. Certainly, some individuals may be indignant or outraged when perceiving inequality, while others may be indifferent or unconcerned. Social dominance theory (Sidanius & Pratto, 2001) suggests that such differential “preference for inequality among social groups” may be captured by the construct social dominance orientation (SDO; Pratto, Sidanius, Stallworth, & Malle, 1994). Because social dominance orientation is the extent to which individuals generally prefer intergroup relations to be hierarchical rather than equal (Pratto et al., 1994), individuals high in social dominance orientation may respond to economic inequality with lower levels of anger (perhaps no anger) as compared with individuals low in social dominance orientation, who are likely to be quite angry at inequality. Since anger mediates the effect of economic inequality on risk perception, if high-SDO individuals do not get angry when

perceiving economic inequality, their perception of risk may be unaffected by economic inequality. Thus, the present research will examine whether social dominance orientation moderates the proposed effect of economic inequality on risk perception.

## **HYPOTHESES**

Based on the review of relevant literature on inequality, injustice, anger, risk perception, and social dominance orientation, the present research aims to empirically test the proposed conceptual model (figure 3) and three hypotheses, formally stated as follow:

**H1: Making economic inequality salient (vs. not salient) will lead individuals to perceive less risks in the financial domain (main effect).**

**H2: The salience of economic inequality will induce anger, which in turn will lead to more optimistic perception of financial risks (mediation).**

**H3: The indirect effect of economic inequality salience on financial risk perception through the emotion of anger will be**

**attenuated for individuals high (vs. low) in social dominance orientation (moderated mediation).**

## **OVERVIEW OF STUDIES**

Three studies investigate the proposed hypotheses. First, the pilot study explores which emotions are aroused by the salience of economic inequality and tests whether anger is a primary emotional response. Study 1 then tests whether the salience of economic inequality lowers the perception of financial risks (H1), whether this effect is mediated by anger (H2), and whether social dominance orientation moderates the mediated effect (H3). Study 2 further replicates the proposed effect (H1) by employing a baseline control condition that skips the economic inequality salience manipulation altogether.

## **PILOT STUDY**

The main objective of the pilot study is to explore the kinds of emotional response to the salience of economic inequality and to establish the primacy of anger as an emotional response. In a short survey, participants were told about statistics that clearly reveal economic inequality in the United States and were asked to report their thoughts and feelings about economic inequality. It was expected that participants would report a



variety of emotions but that anger would be the most common emotional response.

## **Method**

One hundred sixty two participants recruited from Amazon Mechanical Turk (MTurk) participated in a brief survey for a small payment. They were first given the following three statistical facts about economic inequality in America: “The top 0.1% of families own the same share of wealth as the bottom 90%” (Saez & Zucman, forthcoming); “The top 1% has 40% of the nation’s wealth” (Wolff, 2012); and “The average worker needs to work more than a month to earn what the CEO makes in one hour” (Blodget, 2013). Participants then wrote two short essays about (1) what kinds of thoughts go through their minds when they are reminded of such economic inequality and (2) how such reminders of income inequality make them feel. The first question about the thoughts was designed to encourage cognitive processing so as to facilitate participants’ identification of emotions that they experience. After answering the two questions, participants provided their demographic information, including age, gender, education, income, ethnicity, and subjective socioeconomic status (Adler, Epel, Castellazzo, & Ickovics, 2000).

## Results

As expected, participants reported feeling a variety of emotions in response to the reminders of economic inequality. A careful reading of each participant's essay resulted in the identification of 32 words describing distinct emotions (see table 1). Although some of these words conveyed similar emotions (envious and jealous), identifying major emotions and minimizing the number of major emotions (e.g., through a factor analysis) was not the purpose of this study. As the main purposes of the study was (1) to identify distinct emotions (which was achieved) and (2) to see if anger was the primary response, the list of 32 words was used to measure how many participants felt each of the distinct emotions. Tallying up the emotions every time a participant reports feeling each of the emotions led to the results supporting the present research's prediction. Anger was reported as being felt most frequently in response to economic inequality, as anger was the emotion experienced by the highest number of participants (37 participants out of 162 participants, corresponding to 23% of the participants). Figure 4 shows the frequency of experiencing 22 of the 32 emotions, which were reported as being felt by at least two participants.

## **Discussion**

The results from the pilot study show that individuals experience a variety of emotions in response to economic inequality, but that anger is the primary emotional response. Interestingly, 16 participants (about 10%) reported feeling indifferent toward economic inequality, suggesting the presence of a moderator for our proposed effect of economic inequality on anger. The next study aims to investigate whether social dominance orientation is the moderator. But more importantly, the next study also investigates whether anger induced by economic inequality does lower the perception of financial risks.

## **STUDY 1**

Now that the salience of economic inequality has been shown to induce anger, study 1 sets out to see if such anger lowers the perception of risks in the financial domain, as suggested by previous research (Lerner et al., 2003; Lerner & Keltner, 2000, 2001). In this study, participants first answered questions measuring their social dominance orientation; then either took a quiz designed to make economic inequality salient or wrote about their recent shopping experience; reported the feelings they were experiencing at the moment; and finally assessed risks of company stocks.

## Method

Two hundred participants were recruited from MTurk for a small payment. They were invited to participate in a survey consisting of three short “separate” questionnaires and were randomly assigned to one of two conditions in a one-factor (economic inequality salient vs. not salient) between-subjects design. Participants in both conditions first answered the 4-item Short Social Dominance Orientation (SSDO) scale (Pratto et al., 2012). Then participants in the economic inequality salience condition answered a “US Economy Questionnaire” purported to gauge people’s thoughts about economic issues in the United States. Specifically, they answered three questions about economic inequality and were promptly provided with correct answers after answering each of the questions. The three questions were “What percent of the total U.S. income do you think the top 10% took home in 2014?” (answer: 50%); “Fill in the blanks with your best guesses: The bottom 20% / bottom 40% / top 20% of US households owns \_\_\_\_\_% of total wealth in the US” (answers: 0.1%, 0.3%, and 84%); and “How many times more do you think [CEOs of S&P 500 companies] make than their employees?” (answer: 300). For the first and third questions, participants indicated their answers by sliding a bar between two anchors, and the anchor on the right side (maximum value, e.g., 50%

for the first question or 300 for the third question) was the correct answer. Such design was intended for participants to underestimate the severity of economic inequality—as they normally would have anyway in a natural setting (Norton & Ariely, 2011)—so that the economic inequality salience manipulation could have stronger psychological impacts on participants. After answering these questions, participants wrote a short essay (“2-3 sentences or more”) on what kind of thoughts go through their minds when they hear about such inequality and indicated to what extent they felt at the moment ten different emotions in the 10-item short PANAS (Thompson, 2007) on a 5-point scale from 1 (very slightly or not at all) to 5 (extremely).

Participants in the control condition, on the other hand, recalled their most recent shopping experience, similar to the grocery shopping experience essay used in Wan and Rucker's research (2013) for their baseline condition, and wrote a short essay (“2-3 sentences”) on what they thought about as they recalled the experience. They then indicated the emotions they were experiencing at the moment on the same 10-item short PANAS (Thompson, 2007).

Next, financial risk perceptions were measured for participants in both conditions. In what was called a “Consumer Finance Questionnaire,” participants were shown stock price movements of Companies A, B, C, and

D during the year 2015 and assessed the risk of the companies' stocks on a scale from 0 (no risk at all) to 10 (very high risk). This measure of financial risk perception was adapted from the measure developed by Nasic and Weber (2010), and the stock price movements of companies were actual stock price movements of Walmart (A), Comcast (B), Toyota (C), and Facebook (D) during the year 2015, though stock price anchors were different.

Afterward, participants also answered five additional questions measuring their financial risk perception selected from the measure developed by Weber and Hsee (1998). Each of these questions asked participants to assume they had \$20,000 to invest, presented an investment option with three gain or loss outcomes and corresponding probabilities, and asked them how risky the investment option is on a scale from 0 (not at all risky) to 100 (extremely risky).

Finally, participants answered the same demographic questions as in the pilot study, but they also answered the question designed to check whether the manipulation was successful ("In your opinion, how equal or unequal are the income and wealth distributions in the United States?" [very equal = 1; very unequal = 10]). The questionnaire used for study 1 is presented in the appendix.

## Results

*Manipulation Check.* As expected, participants in the economic inequality salience condition thought that the income and wealth distributions are more unequal ( $M_{\text{inequality salience}} = 8.28$ ,  $SD = 2.38$ ) than participants in the control condition ( $M_{\text{control}} = 7.69$ ,  $SD = 2.15$ ;  $t(198) = 1.837$ ,  $p = .034$ , one-tailed). This result showed that the manipulation of economic inequality was successful.

*Stock Risk Perception.* As hypothesized, the salience of economic inequality led to lower perception of risks in stocks. The risk perceptions for Stocks A, B, C, and D were averaged to form an index of stock risk perception. Supporting hypothesis 1, participants for whom economic inequality was made salient perceived lower risks in stocks ( $M_{\text{inequality salience}} = 6.52$ ,  $SD = 1.25$ ) than participants in the control condition ( $M_{\text{control}} = 7.09$ ,  $SD = 1.06$ ;  $t(198) = -3.48$ ,  $p < .001$ ).

*Alternative Measure of Financial Risk Perception.* The second measure of financial risk perception did not produce any significant results. Participants' perceived riskiness ratings on the five investment options were averaged to form an index of investment options. Participants in the economic inequality salience condition perceived nonsignificantly lower risks in investments ( $M_{\text{inequality salience}} = 51.77$ ,  $SD = 12.50$ ) than participants

in the control condition ( $M_{\text{control}} = 51.91$ ,  $SD = 15.98$ ;  $t(198) = -0.07$ ,  $p = .94$ ). As this measure produced nonsignificant results, it is not discussed any further.

*Anger.* The extent to which participants felt anger after economic inequality salience manipulation or in the baseline condition was measured by the “upset” item in the short PANAS (Thompson, 2007). Supporting the first link in hypothesis 2, participants in the economic inequality salience condition reported feeling more angry ( $M_{\text{inequality salience}} = 2.74$ ,  $SD = 1.23$ ) than participants in the control condition ( $M_{\text{control}} = 1.59$ ,  $SD = 0.92$ ;  $t(198) = 7.49$ ,  $p < .001$ ).

*Mediation by Anger.* Hypothesis 2 on mediation by anger was tested using 10,000 bootstrap samples with Hayes’s PROCESS Model 4 (Hayes, 2013), with economic inequality salience (coded as 0 for control and 1 for economic inequality) as the independent variable, stock risk perception as the dependent variable, and the “upset” emotion as the mediator. The results showed that although the direct effect of economic inequality salience on stock risk perception was significant ( $B = -0.55$ ,  $SE = .18$ ,  $p = .003$ ) as its 95% confidence interval (-0.92, -0.19) did not include 0, the indirect effect of economic inequality salience on stock risk perception through anger was not significant ( $B = -0.02$ ,  $SE = .10$ ) as its 95% confidence interval (-0.22, 0.19)



included 0. Thus, the results did not support the hypothesis that anger is responsible for the effect of economic inequality on financial risk perception (H2).

*Mediation Moderated by Social Dominance Orientation.* Perhaps the inconclusive support for the mediation hypothesis was due to not accounting for the possible moderator of the mediation, social dominance orientation. To test for the moderated mediation hypothesis (H3), Hayes's PROCESS Model 7 (Hayes, 2013) was used with 10,000 bootstrap samples with economic inequality salience (coded as 0 for control and 1 for economic inequality) as the independent variable, stock risk perception as the dependent variable, the "upset" emotion as the mediator, and the score on the Short Social Dominance Orientation scale (Pratto et al., 2012) as the moderator. The results revealed that the index of moderated mediation (Hayes, 2015) was estimated to be .0013 with its confidence interval (- .0168, .0347) including 0. Thus, the moderated mediation hypothesis (H3) was also not supported.

## **Discussion**

Results from study 1 shows that the salience of economic inequality does lower the perception of financial risk (i.e., leads to more optimistic

financial risk perception) in support of hypothesis 1. However, they also show that the proposed effect may not be driven by the emotion of anger as speculated in hypothesis 2. Even though study 1 established the direct effect (economic inequality salience → financial risk perception) and the first link in the mediation by anger hypothesis (economic inequality salience → anger), it failed to establish the second link (anger → financial risk perception) and the proposed indirect effect through anger to fully support the mediation hypothesis (H2). Moreover, the moderated mediation hypothesis with social dominance orientation as the moderator (H3) did not receive empirical support from this study.

## **STUDY 2**

As the proposed mediator and moderator of the present research did not receive empirical support, perhaps it may be the case that the effect of economic inequality salience on financial risk perception happened by chance. Or perhaps the effect found in study 1 was due to the shopping experience writing task leading to more pessimistic risk perception, rather than economic inequality salience leading to more optimistic risk perception. Therefore, study 2 seeks to more firmly establish the main effect hypothesis (H1) that economic inequality salience really does lead to more optimistic

perception of financial risks. Unlike study 1, this study employs a control condition that skips the shopping experience writing task. Thus, the main purpose of study 2 was to focus on and verify the main effect found in study 1 and to reject the alternative hypothesis that writing about a shopping experience increased perception of financial risks. The procedure in study 2 was nearly identical to that of study 1.

## **Method**

Two hundred participants recruited from MTurk for a small payment were randomly assigned to one of two conditions in a one-factor (economic inequality salience vs. control) between-subjects design. Participants in both conditions first answered the 8-item System Justification scale (Kay & Jost, 2003), the purpose of which was to test another moderator for exploratory purpose (this moderator produced nonsignificant results and is not discussed further). Then participants in the economic inequality salience condition followed the same procedure as in study 1. Participants in the control condition, however, did not engage in any writing task and proceeded straight to the emotions measure (Thompson 2007). After the emotion measures, participants in both conditions answered the same stock risk perception measure as in study 1, except this time the order of presented

stocks was reversed. Participants then answered another set of financial risk perception measures (Nosic and Weber 2010) similar to those of study 1 and provided the same demographic information and answered the same manipulation check question as in study 1.

## **Results**

*Manipulation Check.* Not surprisingly, participants in the economic inequality salience condition thought that the income and wealth distributions are more unequal ( $M_{\text{inequality salience}} = 9.20$ ,  $SD = 2.14$ ) than participants in the control condition ( $M_{\text{control}} = 8.26$ ,  $SD = 2.46$ ;  $t(198) = 2.88$ ,  $p = .002$ , one-tailed). This result showed that the manipulation of economic inequality was successful.

*Stock Risk Perception.* Again supporting hypothesis 1, the salience of economic inequality led to lower perception of risks in stocks. Participants in the economic inequality salience condition reported more optimistic perception of risks in stocks ( $M_{\text{inequality salience}} = 7.31$ ,  $SD = 1.15$ ) than participants in the control condition ( $M_{\text{control}} = 7.58$ ,  $SD = 1.06$ ;  $t(198) = -1.71$ ,  $p = .04$ , one-tailed).

*Alternative Measure of Financial Risk Perception.* The alternative measure of financial risk perception, though different from the alternative

risk perception measure in study 1, again did not produce any significant results ( $p = .67$ ).

## **Discussion**

Similar to study 1, study 2 also supported the hypothesis that the salience of economic inequality optimistically biases financial risk perception. However, the mediation hypothesis was neither tested nor supported in study 2. Future research should explore possible mediators other than the emotion of anger.

## **GENERAL DISCUSSION**

In three studies, the present research examined the effect of economic inequality salience on financial risk perception. Although only one of three proposed hypotheses were supported, the present research nevertheless strongly established the main proposed effect and encourages further research on the mechanism driving the effect as well as boundary conditions for the proposed effect. The present research found that the salience of economic inequality induces anger and that anger is the most common emotional response to economic inequality (pilot study). More importantly, the present research produced a novel finding that the salience of economic

inequality leads to lower perception of financial risks (i.e., optimistically biases financial risk perceptions). Although the present research did not provide empirical support for the theoretically-grounded hypothesis that the proposed effect is driven by the emotion of anger and did not find a moderator for the proposed effect, it calls for more research on the interesting phenomenon that has important implications for the welfare of consumers and society.

## **Implications**

The present research has important implications for consumer and societal well-being as it suggests that financial risk perception, which directly influences individuals' financial decision making and thereby their well-being (Mick, 2006), can be influenced by a prominent issue of the day, economic inequality. As noted earlier, individuals not only in America but worldwide are constantly exposed to income and wealth inequality, and thus, examining the psychological and behavioral effects of economic inequality salience will be an important line of inquiry for future research (Moss et al., 2013).

## **Limitations**

The present research failed to support the proposed mediator with empirical evidence. Although it presented a strong theoretical case for anger as the mediator for the proposed effect, it will be crucial to find empirical support for anger or another underlying mechanism to fully grasp the findings of the present research. Perhaps the lack of power in study 1 may be to blame for lack of empirical support. Future research should test anger again as the mediator or propose and empirically support a different mediator for the main finding of the present research.

Just as importantly, future research should find the boundary conditions or moderators of the proposed effect. It may be the case that the salience of economic inequality does not lower perception of financial risks for some people and not others (e.g., young people, males or females, people of low or high socioeconomic status). Or it may be the case that the proposed effect is attenuated or strengthened in certain situations (e.g., when the economy is in a bad condition). A better understanding of boundary conditions or moderators will lead to a better appreciation for the findings of the present research. Therefore, future research should also seek to propose and find empirical support for moderators unexplored in this research.

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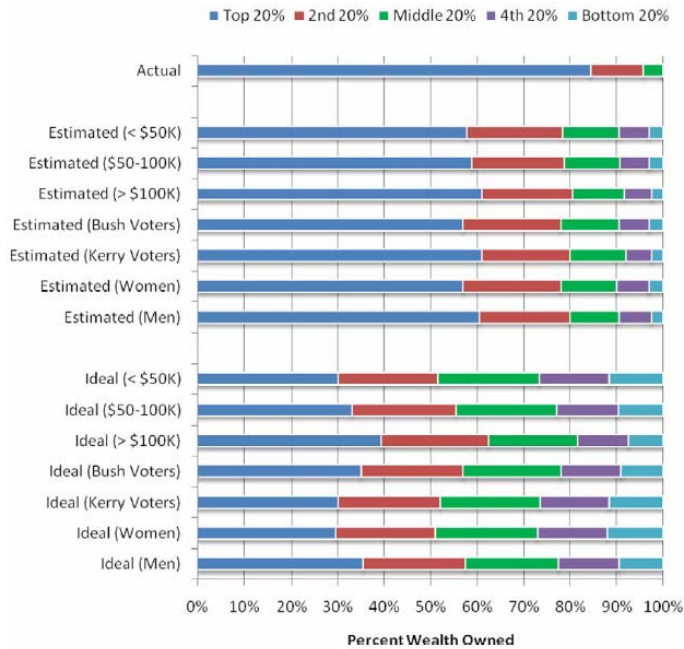
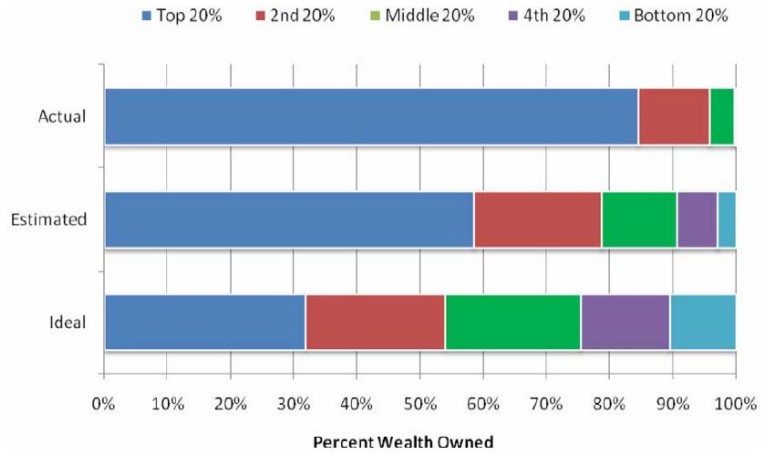
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# FIGURES AND TABLE

**Figure 1**

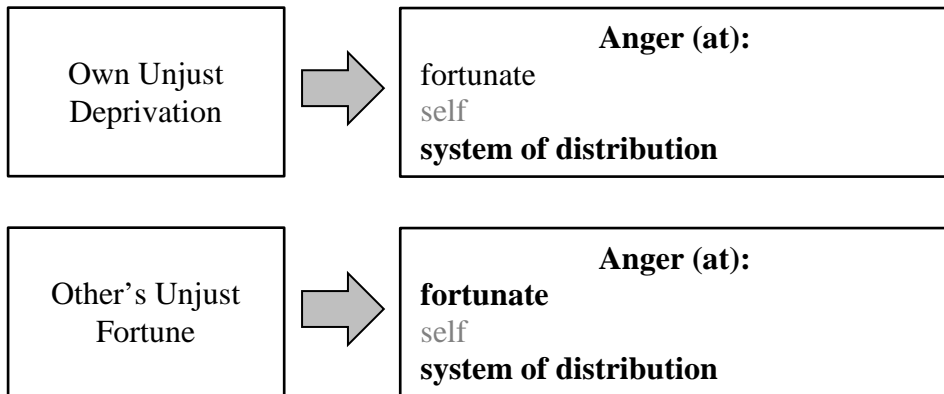


The figure above is from Norton and Ariely (2011).

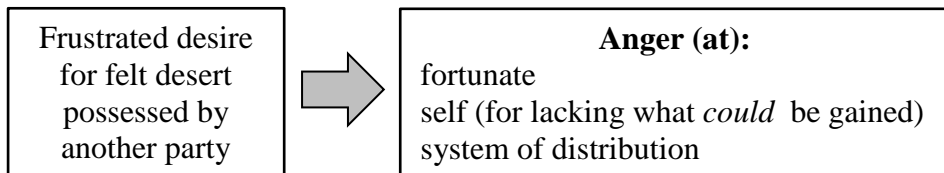
**Figure 2**

**Three Bases of Anger about Inequality**

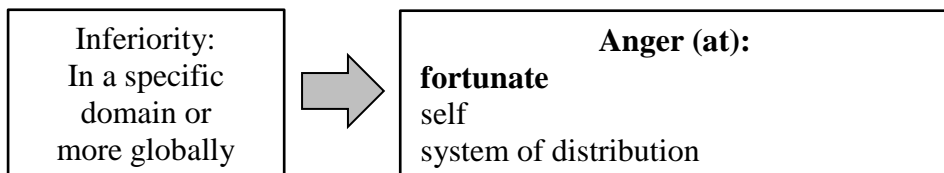
**1. Righteous Anger (“resentment,” “indignation”)**



**2. Envy**



**3. Resentment**

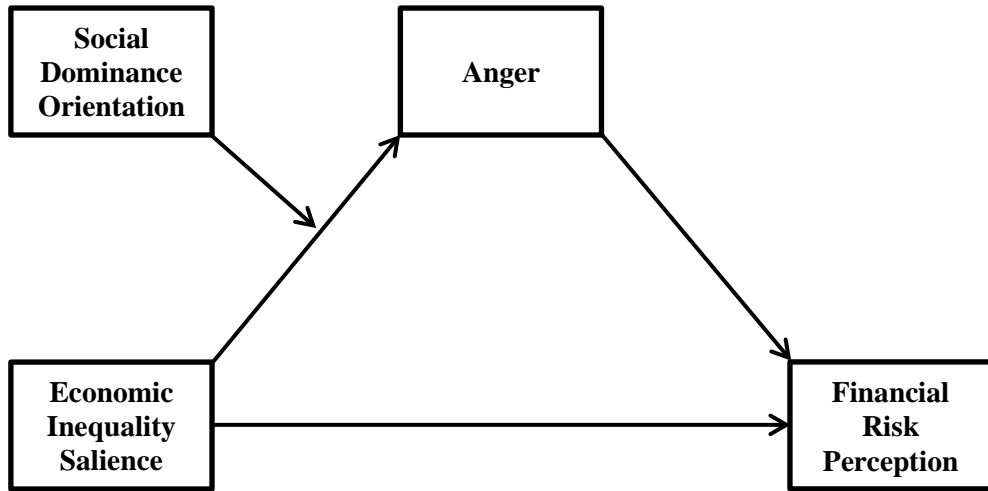


The figure above is adapted from Leach (2008).

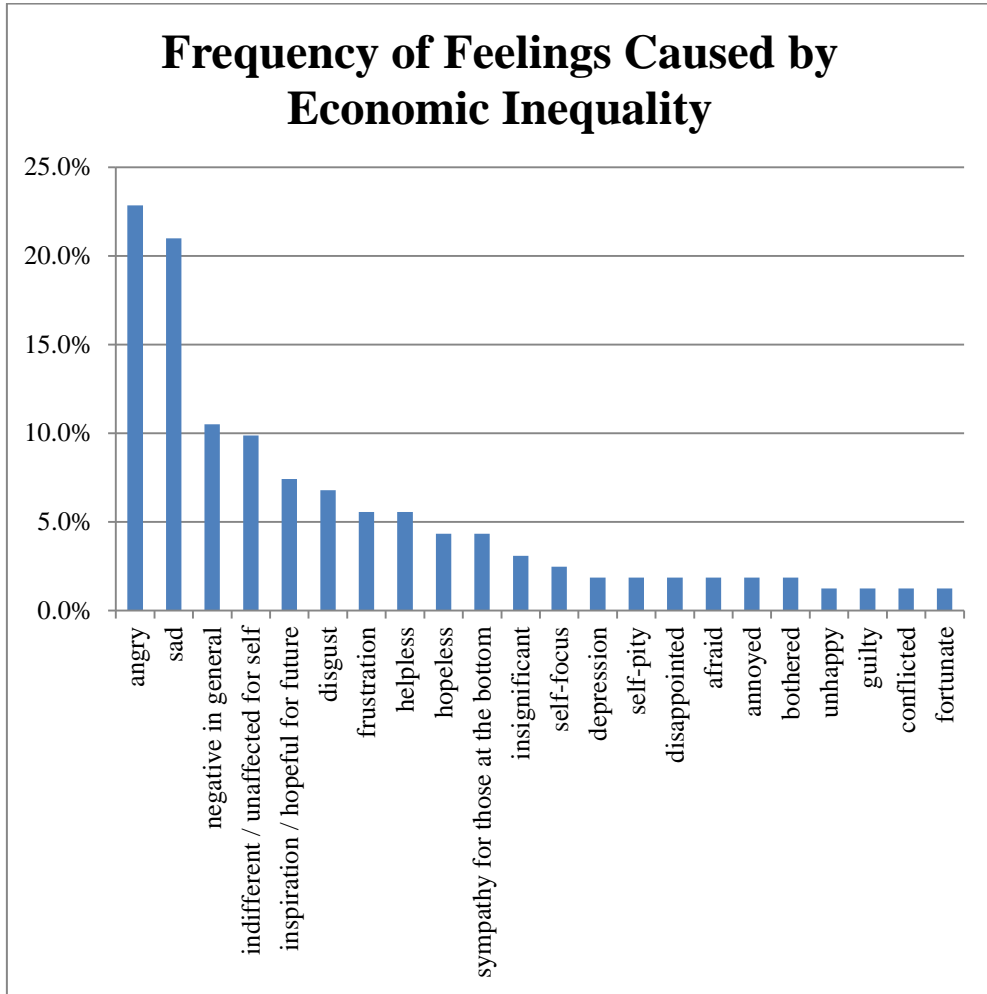


**Figure 3**

**Conceptual Model**



**Figure 4**



**Table 1**

| <b>Experienced Emotion</b>        | <b>Frequency</b> | <b>Number of Participants<br/>(out of 162)</b> |
|-----------------------------------|------------------|--|
| angry                             | 22.8%            | 37   |
| sad                               | 21.0%            | 34   |
| negative in general               | 10.5%            | 17   |
| indifferent / unaffected for self | 9.9%             | 16   |
| inspiration / hopeful for future  | 7.4%             | 12   |
| disgust                           | 6.8%             | 11   |
| frustration                       | 5.6%             | 9  |
| helpless                          | 5.6%             | 9  |
| hopeless                          | 4.3%             | 7  |
| sympathy for those at the bottom  | 4.3%             | 7  |
| insignificant                     | 3.1%             | 5  |
| self-focus                        | 2.5%             | 4  |
| depression                        | 1.9%             | 3  |
| self-pity                         | 1.9%             | 3  |
| disappointed                      | 1.9%             | 3  |
| afraid                            | 1.9%             | 3  |
| annoyed                           | 1.9%             | 3  |
| bothered                          | 1.9%             | 3  |
| unhappy                           | 1.2%             | 2  |
| guilty                            | 1.2%             | 2  |
| conflicted                        | 1.2%             | 2  |
| fortunate                         | 1.2%             | 2  |
| confused                          | 0.6%             | 1  |
| stressed                          | 0.6%             | 1  |
| discouraged                       | 0.6%             | 1  |
| jealous                           | 0.6%             | 1  |
| envious                           | 0.6%             | 1  |
| inadequate                        | 0.6%             | 1  |
| defeated                          | 0.6%             | 1  |
| embarrassed                       | 0.6%             | 1  |
| worried                           | 0.6%             | 1  |
| thankful                          | 0.6%             | 1  |

# APPENDIX

## Social Preference Questionnaire (4 Questions)

There are many kinds of groups in the world:  
men and women, ethnic and religious groups, nationalities, political factions.

How much do you support or oppose the ideas about groups in general?

After each statement, choose a number from 1 to 10 to show your opinion.

1. In setting priorities, we must consider all groups.

|                     |   |   |   |   |   |   |   |   |    |                    |
|---------------------|---|---|---|---|---|---|---|---|----|--------------------|
| Extremely<br>Oppose |   |   |   |   |   |   |   |   |    | Extremely<br>Favor |
| 1                   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |                    |

2. We should not push for group equality.

|                     |   |   |   |   |   |   |   |   |    |                    |
|---------------------|---|---|---|---|---|---|---|---|----|--------------------|
| Extremely<br>Oppose |   |   |   |   |   |   |   |   |    | Extremely<br>Favor |
| 1                   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |                    |

3. Group equality should be our ideal.

|                     |   |   |   |   |   |   |   |   |    |                    |
|---------------------|---|---|---|---|---|---|---|---|----|--------------------|
| Extremely<br>Oppose |   |   |   |   |   |   |   |   |    | Extremely<br>Favor |
| 1                   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |                    |

4. Superior groups should dominate inferior groups.

|                     |   |   |   |   |   |   |   |   |    |                    |
|---------------------|---|---|---|---|---|---|---|---|----|--------------------|
| Extremely<br>Oppose |   |   |   |   |   |   |   |   |    | Extremely<br>Favor |
| 1                   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |                    |

## US Economy Questionnaire (5 Questions)

In this questionnaire, we are interested in people's thoughts about economic issues in the United States.

### 1. Income

What percent of the total US income do you think the top 10% took home in 2014?



### 1. Income

In 2014, the top 10% took nearly **50%** of the total US income.

### 2. Wealth

Please fill in the blanks with your best GUESSES:

(Please do not look up the answers.)

The **bottom 20%** of US households owns \_\_\_\_\_ % total wealth in the US.

The **bottom 40%** of US households owns \_\_\_\_\_ % total wealth in the US.

The **top 20%** of US households owns \_\_\_\_\_ % total wealth in the US.

% of Total US Wealth

## 2. Wealth

The **bottom 20%** of US households owns **0.1%** of total wealth in the US.  
(Your answer: **1%**)

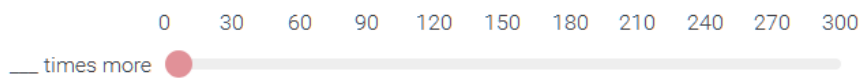
The **bottom 40%** of US households owns **0.3%** of total wealth in the US.  
(Your answer: **1%**)

The **top 20%** of US households owns **84%** of total wealth in the US.  
(Your answer: **1%**)

## 3. Wage Gap

The CEOs of companies in the S&P 500 Index make more money than than their employees.

How many times more money do you think such CEOs make than their employees?



## 3. Wage Gap

According to a 2013 report by the Economic Policy Institute,

the average CEO makes about **300 times** more money than the average worker.

#### 4. Your Thoughts

The previous questions show how income and wealth are unequally distributed among Americans:

- The **top 10%** of Americans take home **50%** of total income.
- The **top 20%** of US households owns **84% of total wealth**, while the **bottom 40% owns only 0.3%**.
- The average CEO of a S&P 500 company makes **300 times** more money than the average worker.

What kind of thoughts go through your mind when you hear about such inequality?  
(Please briefly describe your thoughts in 2-3 sentences or more.)

## 5. Your Feelings

At this moment, to what extent do you feel...

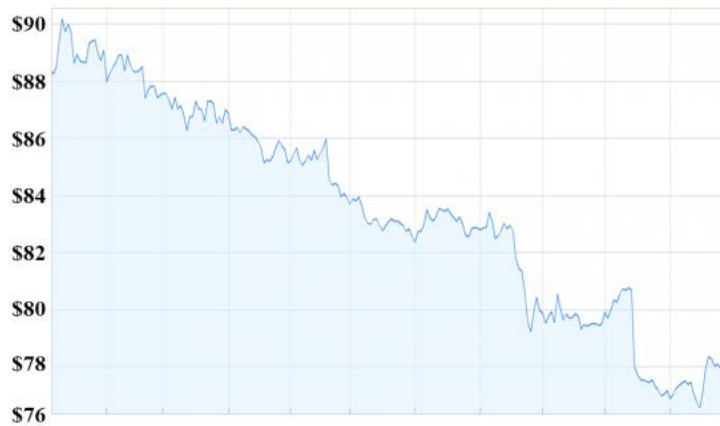
|            | very slightly<br>or not at all<br>1 | a little<br>2         | moderately<br>3       | quite a bit<br>4      | extremely<br>5        |
|------------|-------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| upset      | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| hostile    | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| alert      | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ashamed    | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| inspired   | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| nervous    | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| determined | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| attentive  | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| afraid     | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| active     | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



## Consumer Finance Questionnaire (9 Questions)

In this questionnaire, we are interested in topics related to consumer finances.

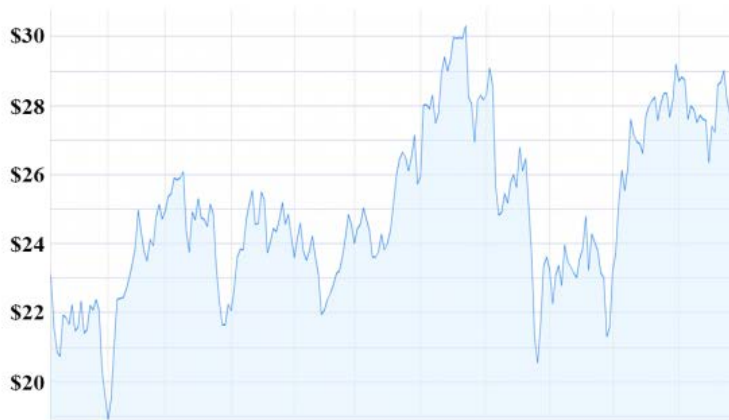
1. The chart below shows the stock price movements of Company A during the year 2015.



How do you assess the risk of Company A's stock on a scale from 0 (no risk at all) to 10 (very high risk)?

|                     |   |   |   |   |   |   |   |   |   |                      |
|---------------------|---|---|---|---|---|---|---|---|---|----------------------|
| No risk at all<br>0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Very high risk<br>10 |
|---------------------|---|---|---|---|---|---|---|---|---|----------------------|

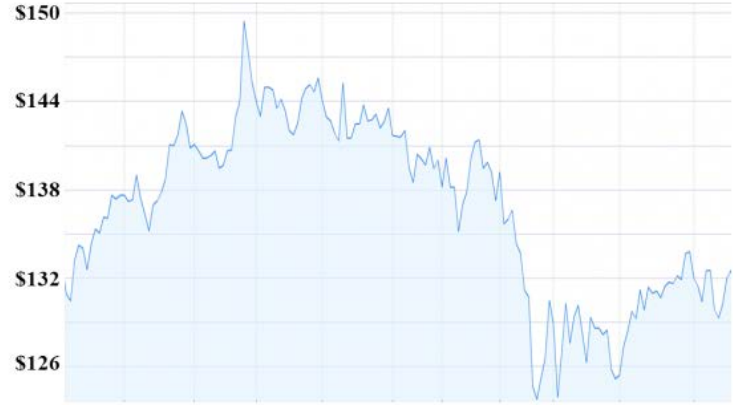
2. The chart below shows the stock price movements of Company B during the year 2015.



How do you assess the risk of Company B's stock on a scale from 0 (no risk at all) to 10 (very high risk)?

|                     |   |   |   |   |   |   |   |   |   |                      |
|---------------------|---|---|---|---|---|---|---|---|---|----------------------|
| No risk at all<br>0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Very high risk<br>10 |
|---------------------|---|---|---|---|---|---|---|---|---|----------------------|

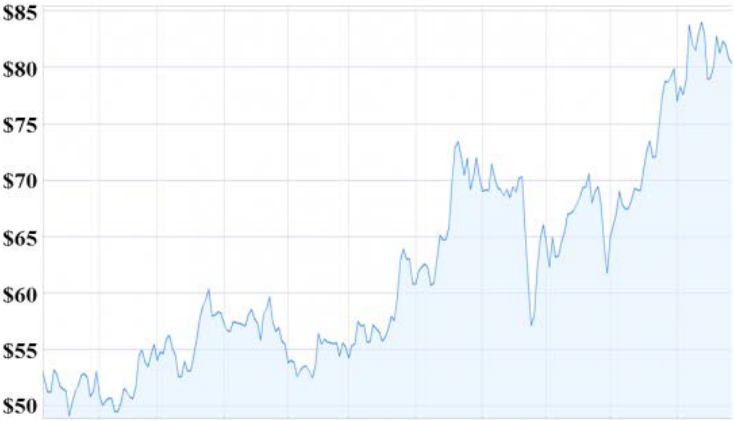
3. The chart below shows the stock price movements of Company C during the year 2015.



How do you assess the risk of Company C's stock on a scale from 0 (no risk at all) to 10 (very high risk)?

|                     |   |   |   |   |   |   |   |   |   |                      |
|---------------------|---|---|---|---|---|---|---|---|---|----------------------|
| No risk at all<br>0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Very high risk<br>10 |
|---------------------|---|---|---|---|---|---|---|---|---|----------------------|

4. The chart below shows the stock price movements of Company D during the year 2015.

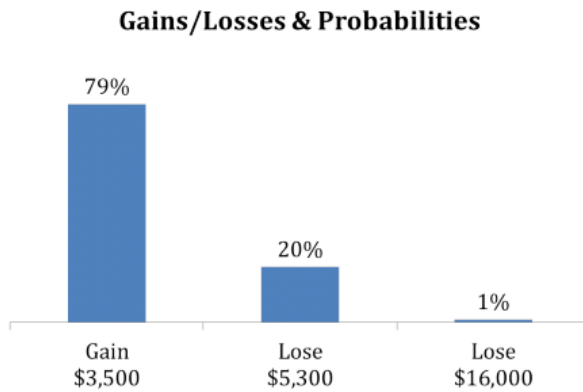


How do you assess the risk of Company D's stock on a scale from 0 (no risk at all) to 10 (very high risk)?

|                     |   |   |   |   |   |   |   |   |   |                      |
|---------------------|---|---|---|---|---|---|---|---|---|----------------------|
| No risk at all<br>0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Very high risk<br>10 |
|---------------------|---|---|---|---|---|---|---|---|---|----------------------|

5. Please assume that you are investing **your own money**:  
- You currently have **\$20,000** available to make investments.

Consider the following investment option:



**How risky** do you think this investment option is?

Please choose a number between **0 (not at all risky)** and **100 (extremely risky)**.



This is the last set of questions for our survey.

You are almost done.

Please share some information about yourself.

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What is your age?

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What is your gender?

Male

Female

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Are you a student?

Yes

No

What is the highest level of education you have completed?

Did not complete high school

High school graduate

Associate's degree / Some college

Bachelor's degree

Graduate Degree or Above

What is your total household income during the past 12 months?

|                   |                     |
|-------------------|---------------------|
| \$0 - 10,000      | \$80,001 - 90,000   |
| \$10,001 - 20,000 | \$90,001 - 100,000  |
| \$20,001 - 30,000 | \$100,001 - 110,000 |
| \$30,001 - 40,000 | \$110,001 - 120,000 |
| \$40,001 - 50,000 | \$121,000 - 130,000 |
| \$50,001 - 60,000 | \$130,001 - 140,000 |
| \$60,001 - 70,000 | \$140,001 - 150,000 |
| \$70,001 - 80,000 | \$150,001 or above  |

How would you describe your political orientation?

|                   |   |   |   |   |   |                        |
|-------------------|---|---|---|---|---|------------------------|
| Very Liberal<br>1 | 2 | 3 | 4 | 5 | 6 | Very Conservative<br>7 |
|-------------------|---|---|---|---|---|------------------------|

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What is your ethnicity?

|                                   |
|-----------------------------------|
| American Indian or Alaskan native |
| Asian                             |
| Black / African American          |
| Hispanic / Latino                 |
| Pacific Islander                  |
| White / Caucasian                 |
| Prefer not to say                 |
| Other                             |



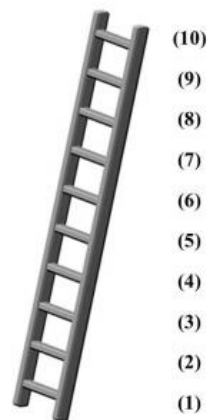
**Think of this ladder as representing where people stand in the United States.**

At the **top** of the ladder are the people who are the best off – those who have the most money, the most education, and the most respected jobs.

At the **bottom** are the people who are the worst off – those who have the least money, the least education, and the least respected jobs or no job.

The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom.

**Where would you place yourself on this ladder?**



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In your opinion, how equal or unequal are the income and wealth distributions in the United States?

|                    |   |   |   |   |   |   |   |   |                       |
|--------------------|---|---|---|---|---|---|---|---|-----------------------|
| Very<br>Equal<br>1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Very<br>Unequal<br>10 |
|--------------------|---|---|---|---|---|---|---|---|-----------------------|

국문 초록

경제적 불평등의 현저성과  
낙관적 재무위험평가의 관계  
- 분노의 감정을 중심으로 -

김진명

경영학과 마케팅전공

서울대학교 경영대학원

최근 몇 년 간, 경제적 불평등이 사회적 이슈로 대두되고 있으며, 이에 따라 전통적 또는 소셜 미디어, 개인 간 또는 그룹 간 상호작용, 혹은 상황적 또는 환경적 요소들 등 여러 자극들이 소비자들에게 경제적 불평등에 대해 상기시켜 주게되었다. 이렇듯 경제적 불평등을 상기시켜주는 자극들은 소비자의 심리나 행동에 어떤 영향을 미칠까? 본 연구에서는 이 질문에 대한 한 가지 대답을 제시한다. 구체적으로, 본 연구는 경제적 불평등의 현저성(salience of economic inequality)이 소비자의

재무위험 평가에 어떠한 영향을 주는지 살펴보고자 한다. 기존 연구를 바탕으로, 본 연구는 경제적 불평등의 현저성이 소비자들로 하여금 불공정과 분노의 감정을 느끼게 할 것이고, 이렇게 유발된 분노의 감정은 결국 소비자들의 재무위험평가를 더 낙관적으로 편향되게 할 것이라는 가설을 세운다. 실제로, 본 연구는 (1) 분노의 감정이 경제적 불평등에 따라 두드러지게 유발되는 감정이라는 결과, (2) 경제적 불평등의 현저성이 분노의 감정을 유발한다는 결과, 그리고 (3) 경제적 불평등의 현저성이 소비자들의 재무위험평가를 낙관적으로 편향되게 만든다는 결과를 제시한다.

**주요어:** 불평등, 재무 위험, 위험 인지, 분노, 불공정, 편향, 사회적 지배성 성향

**학번:** 2011-20507