



U.S. Securities and Exchange Commission

Office of the Investor Advocate



OIAD Working Paper 2023-02

May 2023

# Framing Effects in Expectations Beliefs about the Stock Market

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## **ABSTRACT**

Measuring consumers' expectations of stock market movements is important for understanding individual decisions about consequential financial outcomes and forming economic policy interventions. We measure stock market expectations in several large-scale, nationally representative, longitudinal survey experiments over 12 months (n = 4,613 participants providing 21,670 survey responses). Participants consistently appear more optimistic about future stock market performance when asked to report the chances that the stock market will be "lower" (rather than "higher"), a counterintuitive effect given most prior research on framing effects. Differences in reported expectations between question frames are greater than 10 percentage points for each survey wave, indicating substantial robustness of this effect.

## **ACKNOWLEDGEMENTS**

We thank NORC staff for facilitating this research. Eric VanEpps is both a faculty member at the University of Utah and an Intergovernmental Personnel Act Fellow at the U.S. Securities and Exchange Commission.

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## Introduction

Almost any decision requires a decision-maker to have expectations about the likelihood of relevant future events. In turn, individual decisions aggregate to form the basis of behavior in markets and the economy. For instance, individuals sell stocks when they believe the stock market is likely to decrease (Giglio et al., 2021), and many individuals selling stocks, in aggregate, lower stock prices. Accordingly, projections of aggregated individual- and firm-level decisions inform macroeconomic policy. Policymakers, researchers, and firms frequently conduct surveys to assess consumers' beliefs and attitudes about macroeconomic variables (Bruine de Bruin et al. 2022; Vanguard 2020; Weber et al. 2022). Survey responses are diagnostic of individual-level behavior like stock market participation (Hurd 2009), as well as economic trends, including turning points in economic cycles (Curtin 2019).

Accurate assessments of expectations are necessary for avoiding poorly-designed and poorly-timed policy responses. Misleadingly pessimistic measurements of expectations could lead policymakers to underestimate the chances that stock market growth will turn into a bubble, or lead them to believe a recovery from a down market is unlikely. Beliefs about stock market performance also contribute to inflation expectations amongst firm managers (Kumar et al., 2015), with potential consequences for the prices of goods. According to past measurements, consumers' expectations for stock market growth are generally more pessimistic than historical stock market performance would warrant, leading economists to puzzle over why consumers are not better informed (Hurd 2009).

In this work, we propose that reported stock market expectations are affected by subtle cues in elicitation procedures, which may systematically bias these measures. In particular, “framing effect” studies conducted over multiple decades have shown that evaluations are

affected by simple wording changes, such as whether beef is described as “25% fat” or “75% lean” or whether a surgery is described in terms of “mortality” or “survival” rates (Levin, Schneider, and Gaeth 1998). Most framing effects are valence-consistent, meaning that wording with a positive valence creates positive evaluations (e.g., beef is evaluated more positively when described as “75% lean” instead of “25% fat”); indeed, in Levin and colleagues’ original (1998) review, none of the 36 papers studied showed valence-inconsistent effects. A more recent meta-analysis of 109 published articles investigating valence framing effects in moral judgments also showed a moderate but robust effect ( $d = 0.50$ ) in favor of valence-consistent framing (McDonald et al., 2021).

Given this extensive literature, it is reasonable to hypothesize that positively-valenced questions about the stock market (i.e., those asking about a stock market increase) would lead to relatively optimistic expectations. Such positively-valenced questions are asked in national surveys including the Health and Retirement Study and Survey of Consumer Expectations (HRS 2023 and SCE 2023). To the contrary, though, our work demonstrates a counterintuitive, valence-inconsistent framing effect when measuring consumers’ expectations about future stock market performance.

Leveraging data from several large-scale, nationally representative, longitudinal experiments ( $n = 4,613$  participants providing 21,670 survey responses), we demonstrate that expectations for stock market performance are different when questions ask about the likelihood of the stock market being “higher” versus “lower,” and this difference in expectations moves in the opposite direction of most prior framing effects. Specifically, people make less optimistic predictions about the future value of the stock market when asked to consider the likelihood that market prices will be higher, relative to situations where they are asked to consider the likelihood

that market prices will be lower. The magnitude of the difference is considerable—over 10 percentage points between these two frames. Furthermore, the difference manifests for consumers of different levels of knowledge and numerical ability and does not decline even for experienced survey respondents who answer repeatedly over the course of a year.

These findings should have wide, multidisciplinary appeal. We contribute to literatures in psychology and survey methodology by demonstrating a framing effect within the context of a question (as in Payne et al., 2013), rather than a description of a product or scenario.

Furthermore, we show a relatively rare valence-inconsistent framing effect—suggesting that expectations regarding a future event’s likelihood may be psychologically distinct from evaluations studied in prior framing work (e.g., Levin et al. 1998; McDonald et al., 2021). We also contribute to economic literature on expectations measurement, elicitation, and modeling (Manski 2004; Hurd 2009), identifying a subtle factor (question framing) that may affect the accuracy and reliability of surveyed expectations. Importantly, the elicitation approach is consequential in policymaking contexts because aggregated beliefs about market performance are a central input into economic and financial regulatory policy formulation and key to understanding household economic behavior.

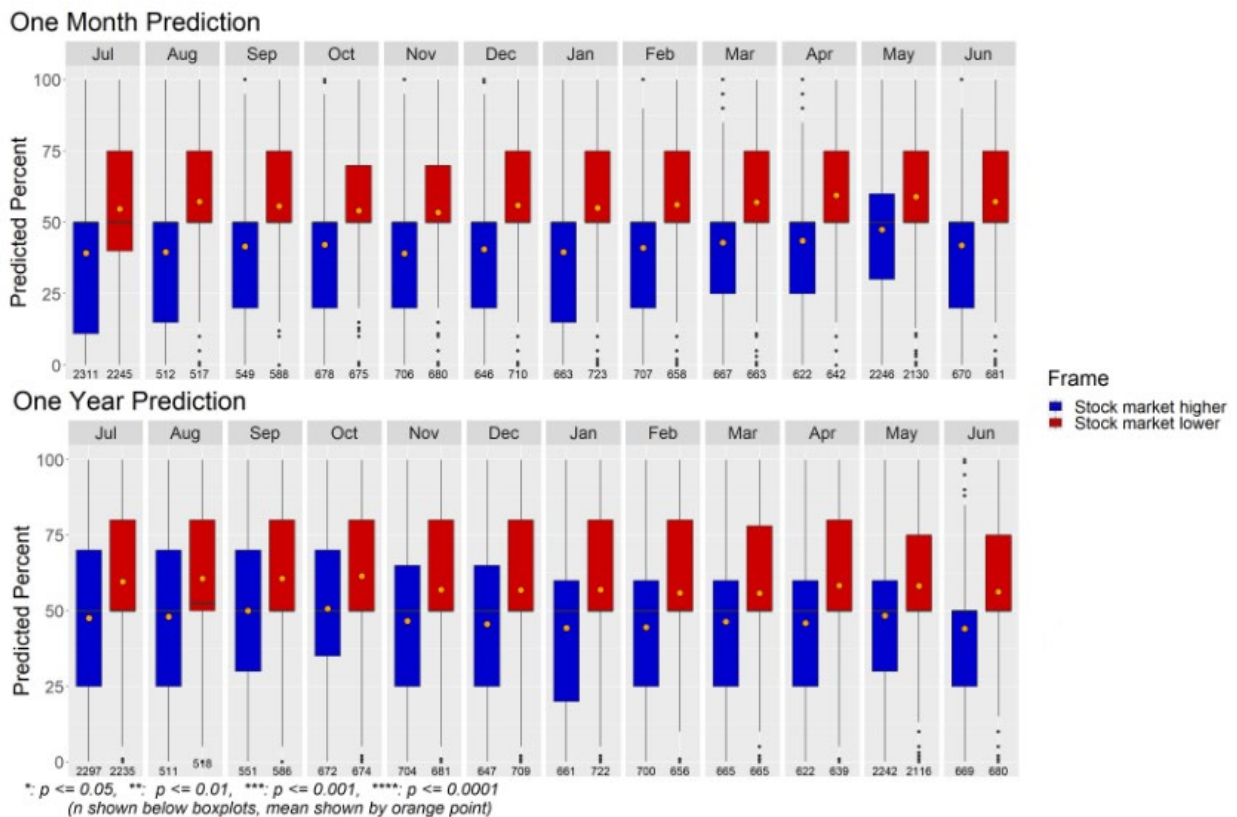
## **Results**

How does the valence of a question affect stock market beliefs? Figure 1 shows that participants who are randomly assigned to answer a question about the likelihood of a stock market decrease appear more optimistic about future stock market movements than those who are asked about the likelihood of an increase. On average, the monthly responses are approximately 14.32 (SD = 1.60) percentage points higher for the negative frame, whereas the

annual responses differ by 11.20 (SD = 0.88) percentage points. Neither gap meaningfully declines over the course of an entire year of iterated data collection waves. When including month- and individual-level fixed effects, the effect remains robust: a regression estimates a difference in monthly expectations of 15.12 (SD = 0.53) percentage points.

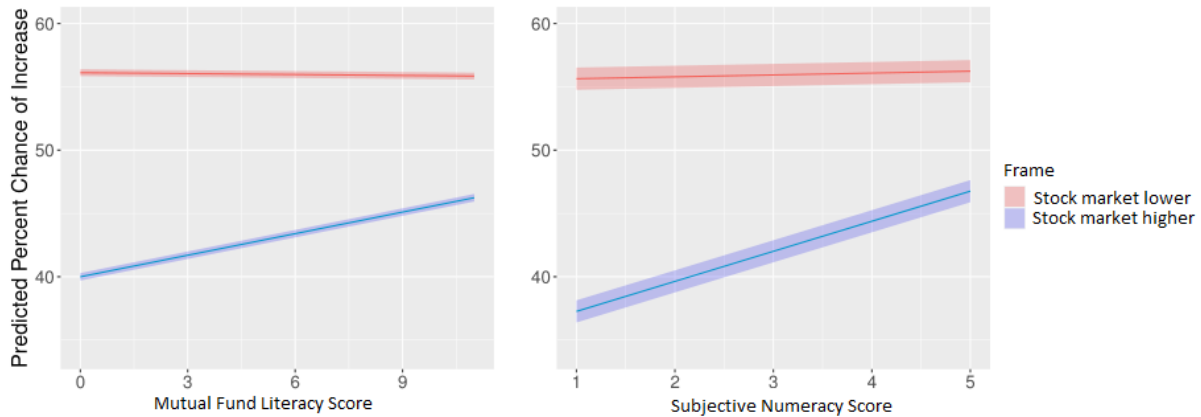
Importantly, though knowledge and numeracy moderate the effect, even the most knowledgeable participants are still susceptible to the change in valence. As shown in Figure 2, while the magnitude of the difference between the two frames diminishes with mutual fund knowledge (Scholl & Fontes, 2022) and with subjective numeracy (Fagerlin et al., 2007), Johnson-Neyman tests show that the differences are statistically significant across the entire ranges of both measures.

**Figure 1. Predicted chances of stock market increase by survey and frame.**



*Note.* Figure displays the predicted chance of a stock market increase over the next month and year for participants by frame. Responses in the “stock market lower” condition are transformed by taking 100 minus the reported probability.

**Figure 2. Moderation of Framing Effect.**



*Note.* Figure displays the predicted chances of a stock market increase in the next month (responses in the “stock market lower” condition are transformed by taking 100 minus the reported probability). There is a significant difference between the frames for respondents at all levels of knowledge or numeracy. Data come from the July survey wave.

## Discussion

Expectations about stock market performance drive individual investment decisions, and measurement of these expectations, in turn, inform economic and regulatory policy formulation. We examine the role of valence framing in consumers’ reported stock market expectations, discovering a valence-inconsistent framing effect that stands in contrast to most prior work on framing. As such, this paper identifies a bias in survey elicitation that may affect the collection of expectations data from individuals, with important repercussions for research and economic policy.

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## Materials and Methods

The surveys analyzed in this manuscript were reviewed by the Institutional Review Board at NORC. Participants were drawn from a curated subset of the AmeriSpeak panel (<https://www.amerispeak.org/>), resulting in a nationally representative, unbalanced, longitudinal data set. All panelists provide informed consent upon joining AmeriSpeak. The data include two large surveys of approximately 4400 respondents each (July 2020 and May 2021). Intervening surveys contain a repeating subset of approximately 1000 to 1200 respondents. Each month, respondents were randomly assigned to either the “higher” or “lower” frame; thus, repeat respondents were likely exposed to both frames.

In the positive frame condition, participants answered the questions “What do you think is the percent chance that [1 month/12 months] from now, on average, stock prices in the U.S. stock market will be higher than they are now?” Those in the negative frame condition answered similar questions with the word “lower” in place of the word “higher”. Respondents answered using open text boxes that restricted answers from 0% to 100%.

To explore potential moderation, we included measures of mutual fund knowledge (0-11 point scale; Scholl & Fontes, 2022) and subjective numeracy (5-point scale based on Fagerlin et al., 2007).

### **Data, Materials, and Software Availability.**

We are not permitted to repost these datasets to a repository.