Same Cues, Different Views: The Impact of Salient Financial Cues on Investment Decisions

Registered Report Stage-1 Review

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Motivation

- Vast amounts of information, cognitive limitations.
- Interfaces steer attention.
- We studied trading apps like that were most frequent.







- Guiding questions:
 - Which financial information captures investors' attention?
 - Are investors consciously aware that their decisions have been influenced?





Theoretical Background

Salience Theory (Bordalo et al., 2012, 2013, 2022):

How attention is automatically drawn to those stimuli that are made salient through three key mechanisms: contrast, surprise, and prominence.







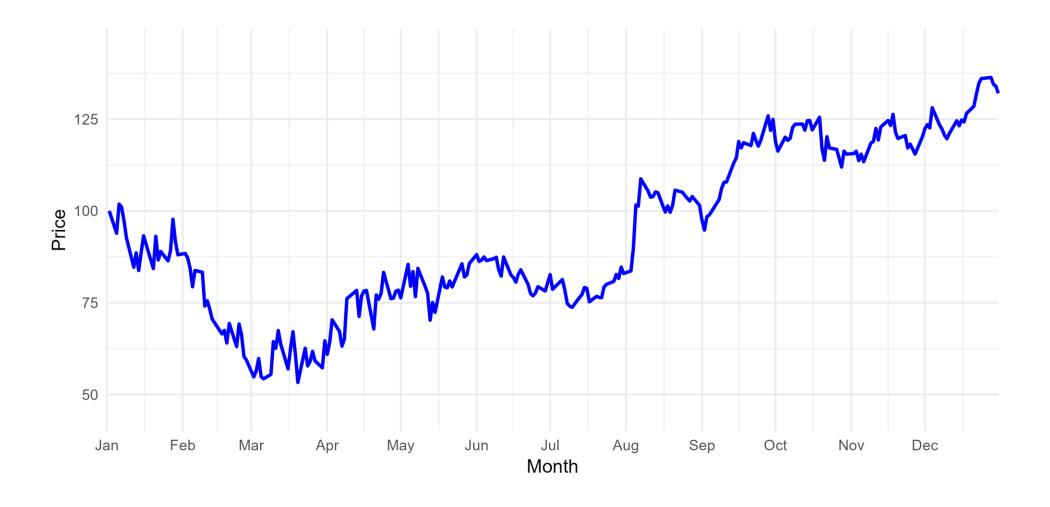
Research Question

RQ1: How do salient financial cues (reinforcing vs. new) influence individual investors' return expectations, risk perceptions, and investment propensities?

RQ2: Do participants' self-reported perceptions of cue informativeness align with their actual behavioral?

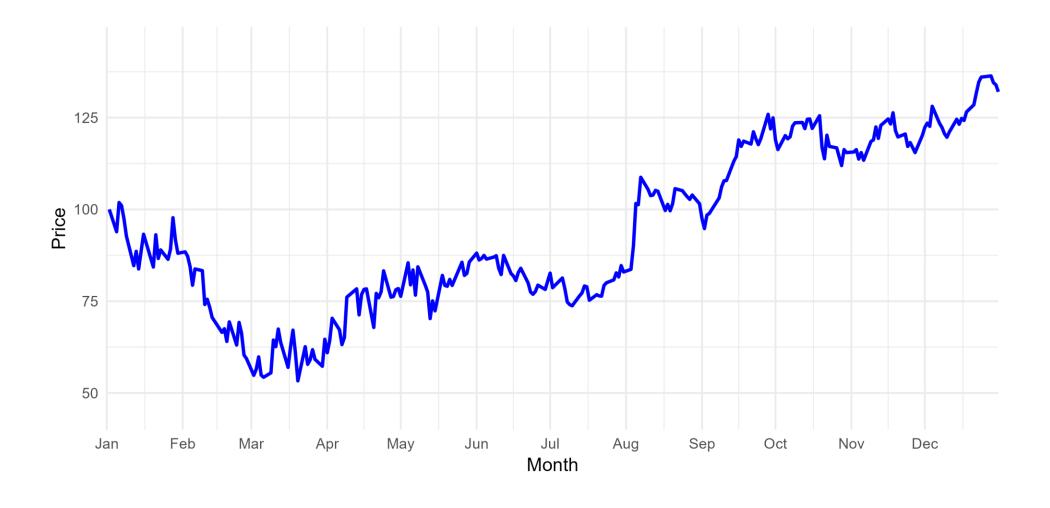








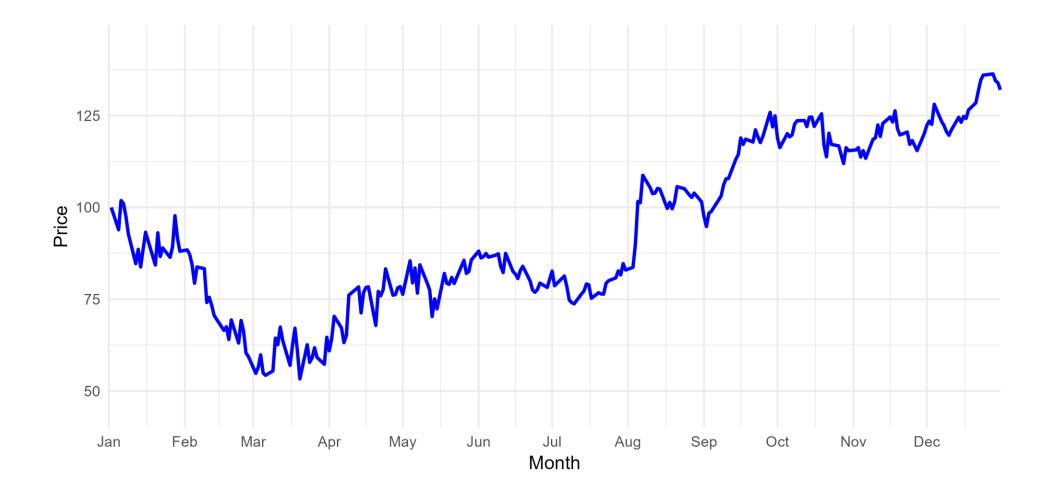




52-Week High: 136.364







BUY Analyst Recommendation: 17.4%





Literature Review—52-Week High

Concept

- One of the most salient financial cues (Della Vedova et al., 2023).
- Acts as a psychological anchor (George & Hwang, 2004)
- Linked to anchoring (Tversky & Kahneman, 1974) and salience theory (Bordalo et al., 2012)

Profitable Strategy

Long-near / short-far strategy (George & Hwang, 2004; Bhootra and Hur, 2013; Khasawneh et al., 2023)

Behavioral Paradox

52-week high triggers selling behavior (Grinblatt and Keloharju, 2001; Heath et al., 1999; Della Vedova et al., 2023)





Literature Review—Analyst Recommendations

7:1

<5%

Buy vs Sell Ratio

(Womack, 1996)

Sell Recommendations in 1985-1999.

(Jegadeesh et al., 2004)

Institutional Constraints

Sell calls are reputationally costly; analysts avoid them.
(Womack, 1996)

Conflict of Interest

Affiliated analysts issued more favorable calls; after the Global Analyst Research Settlement (April 2003), distributions became more balanced but sell < buy persisted. (Lin & McNichols, 1998; Michaely & Womack, 1999; Kadan et al., 2008).

Presentation Format

Same information presented differently: reduced disposition effect. (Krishnan and Booker, 2002)



Retail Investor Challenge: Retail investors react to the presence of recommendations more than content; average outcomes can be poor. (Mikhail et al., 2007; Malmendier and Shanthikumar, 2007).







Experimental Design



Experimental Structure

Within-participant online experiment 6 tasks per participant—2 per treatment.



Randomization

Treatment order and chart assignment fully randomized.



Chart Setup

One-year S&P 500 price charts; firm names and dates masked.

3 tasks





Data Extraction

Identify Universe

Year-end S&P 500 constituents (1996–2023) from Bloomberg.



Ensure Consistency

Match firms by CUSIP across
Bloomberg and Refinitiv, then link to
CRSP for historical prices.



Randomize Constituents

In R (fixed seed), create a randomized ranking of all constituents for each year.



Apply Criteria

Choose the first firm with: complete daily price data for the selected and subsequent year ≥3 analyst recommendations



Final Dataset

28 stock price paths (one per year, 1996–2023), each in three chart versions.





Experimental Treatments

Baseline Treatment

One-year S&P 500 chart, starts at \$100.

Reinforcing Cue Treatment

Baseline chart + 52-week high price

New Information Cue Treatment

+
Analyst Buy Recommendations
(0%–100%).

Baseline chart





Experimental Session







Incentive Structure

Base Payment

\$4 Participation fee

Estimation Bonus

Performance-based incentives for return and variance estimates.

Max \$0.40 per estimate.

Investment Bonus

1 in 50 participants receive bonuses based on actual stock performance.

An average of \$8.10 per participant





Outcome Variables

Return Expectations

Min-Max range + point prediction

Risk Perceptions

Std. dev. estimate via beta distribution

Investment Propensity

\$10000 allocation between the stock and cash





Price Path Characteristics (Borsboom and Zeisberger, 2020)

MinPrice

Minimum price observed in the chart.

3mthsTrend

Average price of the last month - average price of the 3rd last month

DaysBelow100

Number of days the price is below \$100.

MaxCrash

Maximum price decrease within 30 days.

DiffStDevHalves

Monthly StD second half - monthly StD first half

TotalReturn

Total return over the period displayed in the chart.

MaxRecovery

Maximum price increase within 30 days.

DiffReturnHalves

Total return second half - total return first half

StDev

Monthly annualized standard deviation for the entire period.





Participant-specific characteristics



Financial Literacy

Six advanced questions (Rooij et al., 2011)



Risk Attitude

General and financial risk-taking question (Dohmen et al., 2011).



Demographic Profiling

- Sex as recorded on legal/official documents (retrieved from Prolific.com)
- Age
- Household income.
- Investment experience





Regression Model

$$Y_{ij} = \beta_0 + \beta_1 Proximity_j + \beta_2 REINFORCE_{ij} + \beta_3 (REINFORCE_{ij} \cdot Proximity_j) + \beta_4 NEW_{ij} + \beta_5 (NEW_{ij} \cdot Pct_{ij}) + \mathbf{X}_i + \mathbf{Z}_j + \epsilon_{ij}$$

where, $Y_{ii} \in \{RE_{ii}, SDE_{ii}, IP_{ii}\}$ represents one of the dependent variables.

*Proximity*_i: Proximity ratio, defined as the ratio of the stock's current price to its 52-week high.

 $REINFORCE_{ii}$: Dummy for the 52-week high cue (1 = REINFORCE, 0 = BASE or NEW).

 NEW_{ij} : Dummy for the analyst buy recommendation cue (1 = NEW, 0 = BASE or REINFORCE).

Pct_{ii}: Percentage of analysts issuing buy recommendations for the stock as of the end of the year shown in price chart i (ranging from 0 to 100).

 X_i : Vector of participant characteristics (demographics, risk tolerance, financial literacy).

 Z_i : Vector of price path characteristics from Borsboom and Zeisberger (2020).





Hypotheses—52-week High

Return Expectations (Proximity):

Influenced by proximity of current price to 52-week high.

Return Expectations (Cue):

Effect of proximity is stronger when 52-week high cue is present.

Risk Perception (Proximity):

Influenced by proximity of current price to 52-week high.

Risk Perception (Cue):

Effect of proximity is stronger when 52-week high cue is present.

Investment Propensity (Proximity):

Allocation decreases as price approaches 52-week high.

Investment Propensity (Cue):

Decrease in allocation is stronger when cue is shown.

Hypotheses—Buy Analyst Recommendations

H4

Return Expectations:

Return expectation increases with buy recommendation percentage

H5

Risk Perception:

Risk perception decreases with buy recommendation percentage.

H6

Investment Propensity:

Allocation increases with buy recommendation percentage.





Hypotheses—Perceived vs. Actual Reliance

H7: Participants who report having paid greater attention to a financial cue exhibit stronger behavioral responses to that cue.

$$\begin{aligned} Y_{ij} &= \beta_{0} + \beta_{1} Proximity_{j} + \beta_{2} REINFORCE_{ij} + \beta_{3} \left(REINFORCE_{ij} \cdot Proximity_{j}\right) \\ &+ \beta_{4} AttentionREINFORCE_{i} \\ &+ \beta_{5} \left(REINFORCE_{ij} \cdot Proximity_{j} \cdot AttentionREINFORCE_{i}\right) \\ &+ \beta_{6} NEW_{ij} + \beta_{7} \left(NEW_{ij} \cdot Pct_{ij}\right) + \beta_{8} AttentionNEW_{i} \\ &+ \beta_{9} \left(NEW_{ij} \cdot Pct_{ij} \cdot AttentionNEW_{i}\right) + \boldsymbol{X}_{i} + \boldsymbol{z}_{j} + \epsilon_{ij} \end{aligned}$$

where, *AttentionREINFORCE*_i: Participant's self-reported attention paid to the 52-week high cue (11-point Likert scale). *AttentionNEW*_i: Participant's self-reported attention paid to the analyst buy recommendation cue (11-point Likert scale).





Exploratory Analyses

We test both cues for their predictive ability, allowing us to assess whether attention to them is justified.

We estimate β_i using current year return, then calculate α_i in the subsequent year using a simple market model:

$$r_i = \alpha_i + \theta_i r_M$$

where r_i is the return of stock i, r_M is the return of the S&P 500 Total Return Index.

We then regress each stock's alpha in year t+1 on the proximity to 52-week high and analyst buy percentage measured at the end of year t:

$$\alpha_i = \gamma_0 + \gamma_1 Proximity_i + \gamma_2 AnalystPct_i + \eta_i$$



Exploratory Analyses-II

We test whether participants who react more strongly to these cues achieve superior outcomes.

$$\begin{aligned} &Payoff_{ij} = \beta_{0} + \beta_{1}REINFORCE_{ij} + \beta_{2}\left(REINFORCE_{ij} \cdot Proximity_{j}\right) \\ &+ \beta_{3} \ AttentionREINFORCE_{i} \\ &+ \beta_{4}\left(REINFORCE_{ij} \cdot Proximity_{j} \cdot AttentionREINFORCE_{i}\right) \\ &+ \beta_{5}NEW_{ij} + \beta_{6}\left(NEW_{ij} \cdot Pct_{ij}\right) + \beta_{7} \ AttentionNEW_{i} \\ &+ \beta_{8}\left(NEW_{ij} \cdot Pct_{ij} \cdot AttentionNEW_{i}\right) + \textbf{\textit{X}}_{i} + z_{j} + \epsilon_{ij} \end{aligned}$$

where $Payoff_{ij}$ is defined as the total portfolio value of participant i for price chart j calculated as $10,000 + IP_{ij} \cdot r_{j,t+1}$, where $r_{i,t+1}$ is the stock's actual return over the subsequent year.





Pilot Study

- Sample: N = 49 MBA students (Indian Institute of Management, Kashipur)
- Duration: ~30 minutes
- Post-experimental interview for feedback
- Participation fee: €4

- We will recruit participants using Prolific.com with some pre-screening questions.
- Required sample size: 1,000 participants.





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