

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

Registered Report Stage-1 Review

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We work for
tomorrow



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Motivation

- Vast amounts of information, cognitive limitations.
- Interfaces steer attention.
- We studied trading apps like  flatex  Groww and picked cues 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

Buy vs Sell Ratio
(Womack, 1996)

<5%

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

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

Experimental Session

Onboarding

1

- Consent, data protection, participants' rights, demographics.
- CAPTCHA + color–emotion task (Simone et al., 2023).

2

Training Phase

- Familiarization with interface and sliders.
- Practice tasks with mandatory input.
- Attention Check.

Main Investment Tasks

3

6 rounds:

- Return & risk expectations (Gonzalez-Fernandez, 2024)
- \$10,000 allocation (framed as \$5000 stock + \$5000 cash)

4

Post-Experimental Phase

- Financial literacy by van Rooij et al. (2011).
- Risk tolerance by Dohmen et al. (2011).
- Perceived reliance on cues (self-reported influence)

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.

- **MaxCrash**

Maximum price decrease within 30 days.

- **MaxRecovery**

Maximum price increase within 30 days.

- **3mthsTrend**

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

- **DiffStDevHalves**

Monthly StD second half - monthly StD first half

- **DiffReturnHalves**

Total return second half - total return first half

- **DaysBelow100**

Number of days the price is below \$100.

- **TotalReturn**

Total return over the period displayed in the chart.

- **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, $Y_{ij} \in \{RE_{ij}, SDE_{ij}, IP_{ij}\}$ represents one of the dependent variables.

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

$REINFORCE_{ij}$: 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_{ij} : Percentage of analysts issuing buy recommendations for the stock as of the end of the year shown in price chart j (ranging from 0 to 100).

$\mathbf{X}_i$: Vector of participant characteristics (demographics, risk tolerance, financial literacy).

$\mathbf{Z}_j$: Vector of price path characteristics from Borsboom and Zeisberger (2020).

Hypotheses—52-week High

H1a

Return Expectations (Proximity):

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

H1b

Return Expectations (Cue):

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

H2a

Risk Perception (Proximity):

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

H2b

Risk Perception (Cue):

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

H3a

Investment Propensity (Proximity):

Allocation decreases as price approaches 52-week high.

H3b

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.

$$\begin{aligned} Y_{ij} = & \beta_0 + \beta_1 Proximity_j + \beta_2 REINFORCE_{ij} + \beta_3 (REINFORCE_{ij} \cdot Proximity_j) \\ & + \beta_4 AttentionREINFORCE_i \\ & + \beta_5 (REINFORCE_{ij} \cdot Proximity_j \cdot AttentionREINFORCE_i) \\ & + \beta_6 NEW_{ij} + \beta_7 (NEW_{ij} \cdot Pct_{ij}) + \beta_8 AttentionNEW_i \\ & + \beta_9 (NEW_{ij} \cdot Pct_{ij} \cdot AttentionNEW_i) + \mathbf{X}_i + z_j + \epsilon_{ij} \end{aligned}$$

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:

$$r_i = \alpha_i + \beta_i r_M$$

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.

$$\begin{aligned} \text{Payoff}_{ij} = & \beta_0 + \beta_1 \text{REINFORCE}_{ij} + \beta_2 (\text{REINFORCE}_{ij} \cdot \text{Proximity}_j) \\ & + \beta_3 \text{AttentionREINFORCE}_i \\ & + \beta_4 (\text{REINFORCE}_{ij} \cdot \text{Proximity}_j \cdot \text{AttentionREINFORCE}_i) \\ & + \beta_5 \text{NEW}_{ij} + \beta_6 (\text{NEW}_{ij} \cdot \text{Pct}_{ij}) + \beta_7 \text{AttentionNEW}_i \\ & + \beta_8 (\text{NEW}_{ij} \cdot \text{Pct}_{ij} \cdot \text{AttentionNEW}_i) + \mathbf{X}_i + z_j + \epsilon_{ij} \end{aligned}$$

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 $r_{j,t+1}$ 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
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- We will recruit participants using Prolific.com with some pre-screening questions.
 - Required sample size: 1,000 participants.

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