Limited Consideration Sets and Financial Decision-Making

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Research Question

- Do retail investors evaluate the full universe of assets?
- Standard assumption: full information $\rightarrow$ retail investors underperform
- Reality: limited attention, investors never consider most assets
- Key idea: Investors choose from a **limited consideration set**, which is a small subset of the full universe of assets
- Conditional on this smaller consideration set, are investors making poor choices, meaning do their portfolios still underperform?

Contribution

- Direct observation of the consideration sets, i.e. the assets that were considered by investors before trading
  - $\rightarrow$ Investors only consider a small subset of the full universe of assets prior to a buy decision
- Evaluate performance against different benchmarks:
  - $\rightarrow$ Retail investors underperform when considering the full universe of assets, but outperform when benchmarking against the smaller consideration set (on a risk-adjusted basis)
- Importance of attention constraints
  - $\rightarrow$ When investors pay more attention, they make better choices $\rightarrow$ achieve higher risk-adjusted returns

Data

- Professional third-party financial institution in China
- Public funds investors (retail mutual funds)
- 13,000+ retail investors
- High-frequency browsing data:
  - → Assets viewed before trading
  - → Viewing duration and frequency
- Consideration set:
  - → Assets viewed in prior 7 days
- Investors' demographic characteristics (gender, age, education, profession).
- Sample period: December 1, 2021 to October 31, 2022

Suggestions

- Provide a lot more detail on the setting and data!
- What information is available for investors to view?
- Is the information standardized across funds?
- How is the information displayed?
- Why restrict viewings to the 7 days prior to the trade? Data limitations?
- Investors who trade without viewing first?
- Do investors view funds that they already hold? Performance evaluation of their portfolios?
- What is the universe of funds available in the platform? Bonds and stocks only? Active or passive? Fees? Individual stocks?
- What was happening in stock and bond markets in the 11 months covered by the sample?
- "We estimate fund-level exposures to stock and bond market factors using two months of pre-trade data." Why two months only? Is it robust to longer horizons?

Limited Attention

- Thousands of available assets
- Assets viewed: mean 25.1; median 2; p95 131.
- Strong evidence of limited consideration. Perhaps not that surprising
- But, very interestingly, skewed distribution $\rightarrow$ **Investor heterogeneity**.
- Browsing length: mean 9.7 min; median 45 seconds; p95 48.8 min.
- What drives distortions in consideration set formation?
  - $\rightarrow$ Familiarity bias: concentration within the same fund families.
  - $\rightarrow$ Salience bias: consideration of top ranked funds, avoid funds that have experienced recent losses.

Suggestions

- Explore investor heterogeneity
- Age, gender, income, education, wealth, etc
- Biases in attention and in trading behavior
- Are the biases in trading behavior previously identified in the literature similar to the biases in attention? For the different investor types?
- Or are there differences between the biases in attention and trading behavior, and if so, which differences and for which investor types?
- T+1 trading rule and Friday trades:
  - → Analysis of round trip trades
  - → Overall, out of all buy trades, 86.1% are sold within 48 weeks
  - → Among the Friday buy trades, 39.7% are sold within 48 weeks
  - → Significant differences in holding periods, possibly investment strategies/investor types
  - → Is the Friday effect a selection or a treatment effect? E.g. some investors may have more time on Fridays for their trading decisions

Performance Results: Benchmark Matters

- Relative to full universe: Investors underperform
- Relative to consideration set: Investors outperform
- Magnitude: +10 to 40 bps within-consideration set out performance
- Conclusion: Investors are able to systematically pick the better-performing assets within what they see
- My first reaction: How is this possible?
  - → Efficient markets hypothesis benchmark
  - → Literature on active mutual funds performance

Empirical Strategy

- Evaluate performance of the assets bought:
  - → Relative to a benchmark constructed as an equal weighted portfolio funds of the same type as the traded fund (e.g. equity, bond, etc.)
  - → Include Investor by set fixed effects: pair of traded asset and its benchmark
  - → Include product and month fixed effects to account for product-specific and macroeconomic unobservables
- What role does this way of evaluating performance play in the results?
- **Suggestion:** use a multifactor model to calculate risk-adjusted performance
  - → Approach similar to the one used in mutual fund performance evaluation
- Do the results of underperformance relative to universe and and outperformance relative to the consideration set go through?

Performance results interpretation

- When investors pay more attention, they make better investment decisions (within their consideration set)
- Better mutual fund (stock?) picking skills?
- About which dimensions of performance?
  - → Gross performance
  - → Performance net of fees/expenses
- **Suggestion:** Investigate the role of fund fees/expenses for the results
  - → Are investors picking the funds with lower fees among the consideration set?
  - → Is the fees/expenses information displayed in the platform? How?
  - → Median browsing length is 45 seconds

Attention Improves Choices

- T+1 trading rule: orders submitted on Friday are confirmed on Monday, at Friday closing prices
- Longer wait for confirmation $\rightarrow$ more uncertainty on Fridays, leading to
  - $\rightarrow$ More browsing
  - $\rightarrow$ More deliberation
- Result: Better within-set performance
- Role of fees for this result?
- Literature on weekend and public holiday effects in stock returns, but Friday closing prices
- More uncertainty on Fridays about what? The order not going through? How likely is that to happen and for what reasons?
  - $\rightarrow$ Cannot withdraw the order after submitting it. More time to regret before receiving confirmation.
  - $\rightarrow$ Pay more attention, but also possibly selection on the investors present on Fridays and the types of orders submitted on Fridays

Experimental Evidence

- "Analyze the effects of attention on porftfolio performance in a controlled environment."
- Simulated trading environment: 20 goods and 15 periods
- Each good has a different probability of increasing or decreasing in a period.
  - → Participants are not given the probabilities
  - → Learn about the probability of increase for each of the goods
- Randomly direct attention to subset of assets. Findings:
  - → Higher sensitivity to signals
  - → Improved performance
- Interpretation: Attention causally improves decisions.
- **Comment:** Very nice experiment, but how do we map it to retail investor behavior in financial markets? Ability to predict price movements?
- But on its own, still very nice experiment on the importance of attention for decision quality. (Information processing, Signal extraction, Risk evaluation)

Additional suggestions:

- The paper focus on buy decisions, and has little on sell decisions.
  - → Role of attention for sell decisions?
- Source of funds for the buy decisions? Previous sell or cash being held in a cash account? Does it matter?
- How diversified are investor portfolios? Do biases in attention lead to less diversification?

Attention and retail investors

- What is the optimal portfolio for a retail investor?
- Well diversified low fees passive fund (stocks + bonds)
- Mix of stocks and bonds depending on the investor risk-aversion and horizon
- Given this, how much attention is needed or how much attention should they be paying?
- How does attention impact the consideration set?
- Could less attention actually be better and lead to better decision making?
- Importance of paying attention to the right things.
- Role of intermediaries in drawing investor attention (to the right or wrong things).

Conclusion

- Very nice paper, focusing on the role of attention for investment decisions.
  - → Made me think and I learned from it!
- Key insights:
  - → Understanding choice requires understanding attention
  - → More attention leads to better investment choices

THANK YOU