Discussion of

Mutual Fund Flows and Performance in (Imperfectly) Rational Markets?

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1. Putting this paper in perspective

Background: Berk and Green (2004)

- Consensus prior to Berk and Green:
  - Fund managers have no skill to beat the market.
  - Investor flows chasing returns are irrational.

- Berk and Green has three key assumptions:
  1. (Some) fund managers do have skill
  2. Active management is subject to decreasing returns to scale (DRS)
  3. Fund flows reflects rational learning about manager skill

What is the empirical evidence so far?

1. Fund managers do have skill?
   - **Yes.** Using portfolio-level data, many papers document that (at least some) managers have stock picking skills

2. They are subject to decreasing returns to scale (DRS)?
   - **Mostly yes,** but with disagreements about scope and magnitudes
     - Chen et al (2004), Yan (2008), Pastor Stambaugh Taylor (2015, 2020), Zhu (2018)

3. Fund flows reflect rational learning about manager skill?
   - **Mostly no.**
   - Frazzini and Lamont (2008) *"dumb money effect"*: investors lose 0.7–0.85%/year due to their active reallocation across funds

Understanding the “dumbness” of mutual fund flows

- Fail to adjust for factor components in performance
  - Berk and Van Binsbergen (2016), Barber, Huang, and Odean (2016), Ben-David et al (2020)
- Naively follow Morningstar ratings
  - With no awareness to methodology changes. Evans and Sun (2020)
- Creates price pressures at the stock and style levels
- …

This paper

- This paper proposes an elegant structural model that relaxes the third assumption (rational learning) in Berk and Green
- This paper is the first to "decomposing dumbness" in a **unified** manner
  - Previous papers tackle one aspect at a time
- The structural results can be linked to various empirical findings:
  - Over-investment in mutual funds
  - Over-weighting recent performance
  - Slow adjustment
  - Institutional flows are smarter
- A plus: the paper is *extremely* well written
  - Learning this structural model is a pleasurable experience (rare!)

2. Comments

Comment 1: Should decreasing returns to scale be at the fund level?

- What is the source of decreasing returns to scale?
- Two main interpretations:
  1. "Running out of good investment ideas" – a fund-level explanation
  2. Price pressures – not a fund-level explanation

$$\alpha_{realized} = \alpha_{potential} - D(Fund\ Size)$$

- Empirically estimated DRS is **large**!
- The median fund has $250 million AUM (2011 dollars)
  - $\alpha_{potential}$= 1.4%/year
  - Estimated DRS: $100 million inflow (+40% AUM) lowers alpha by ≈ 1%
    - Similar results in Chen et al (2004), Ferreira et al (2013), Zhu (2018)

This is too large to solely come from "running out of good investment ideas"!

- Before flows, the $250 million fund has 1.4% alpha, which means $250 \times 1.4\% \approx \$3.5$ million alpha in *dollar value*
- Suppose the fund manager invests the additional $100 million passively *without price pressures*:

$$Alpha\ Decline = 1.4\% - \frac{\$3.5m}{\$250m + \$100m\ flow} = 0.40\%$$

- This is much smaller than the empirically estimated DRS!
- In fact, under this explanation, gross alpha can never be negative:

$$\lim_{AUM \uparrow \infty} \frac{Dollar\ Value\ of\ Alpha}{AUM} = 0$$

Therefore, a substantial part of DRS is likely due to price pressures

- However, price pressures are **not** at the fund-level
- Example: suppose you manage an internet sector fund.
- *All flows into the internet fund sector are bad for you!*
  - These flows will push up internet stock valuation across the board and make it more difficult for you to outperform
  - Asset pricing factor adjustments are unlikely to entirely account for this
- As mentioned earlier, there is evidence that fund flows produces price pressures at the stock, style, and industry levels
  - Lou (2012), Ben-Rephael, Kandel, and Wohl (2012), Song (2019), Li (2020), Ben-David et al (2020)
- Thus:

$$DRS = f(Fund\ Size, flow\ to\ funds\ holding\ similar\ stocks)$$

Comment 2: interpreting the estimated investor beliefs

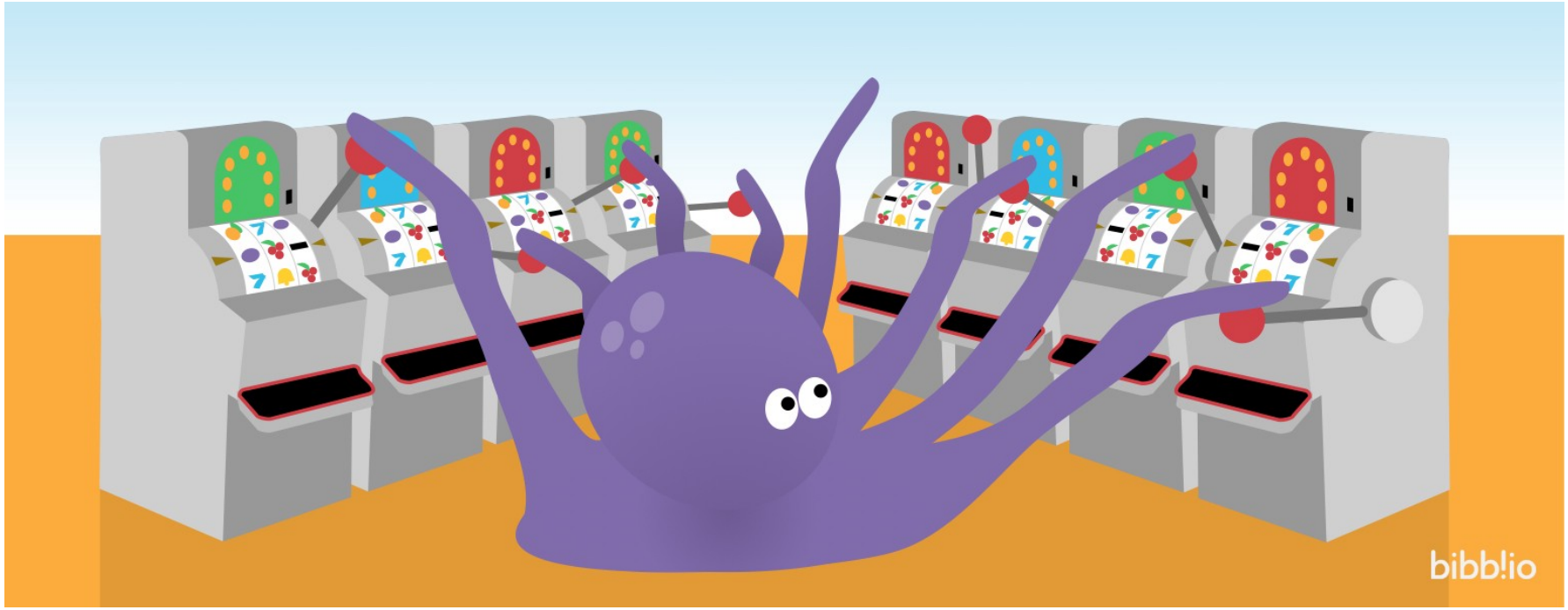
- Some results are more difficult to interpret.
- For instance, estimates in the paper show that investors "overestimate decreasing returns to scale (DRS)"

- However, Choi and Robertson (2020) shows that only 18% of surveyed retail investors think there is DRS
  - 90% of mutual fund investors are retail
  - Even many financial economists don't think there is DRS!

- As such, "investors overestimate DRS" appears to be an "as-if" result
  - Might be worth linking this result to a more *behaviorally accurate* interpretation

Another issue: what are they really chasing?

- Berk and Green: investors are learning managerial skill
  - However, Dannhauser and Pontiff (2020) show that return-chasing is also strong in index funds
- Some (not all) investor behavior might just be *return extrapolation*
  - Similar to learning the payoff of a multi-arm bandit problem



Comment 3: why exactly do investors lose money?

- I think the paper can evaluate more useful counterfactuals.
- For intance, the paper shows that investors deviate from fully rational behavior in a number of ways
  1. Overestimate skill
  2. Underestimate skill persistence
  3. Overestimate signal/noise ratio
  4. Slow adjustment to information

  …
- *How much investor loss is accounted for by each of these deviations?*
  - This should be easy to address using the model estimates

Comment 4: provide (even) more insight into how the model is identified

- The model is already *very transparent* as a structural model.
  - However, there are still things that are difficult to grasp on a first read.
- For instance, the model estimates that investors overestimate signal/noise ratio and DRS
  - Conceptually, overestimating signal/noise ratio ⇒ more return-chasing
  - Overestimating DRS ⇒ less return-chasing
  - *These seem to offset each other. How are these two variables identified?*
- Suggestion: which data moment pins down which parameter?
  - Andrews, Gentzkow, and Shapiro has a list of papers attempting to address this

Summary

- This paper provides an elegant strucural model that sheds light on the sources of mutual fund investor deviation from the rational benchmark
- The results are believable and consistent with other empirical studies

- My main quibbles:
  - Decreasing returns to scale may not be at the fund-level
  - How to interpret the implied belief of investors

- Overall, I learned a lot from this paper