## Background

- **Alphas**: average monthly abnormal returns after the portfolio sorting date.
  (E.g., rebalancing the portfolio every twelve months will have twelve alphas after sorting)
- **Alpha Mean** (prior studies): the average of alphas after sorting.
- **Alpha Dynamic** (this paper): evolution of alphas after sorting.

## What I Do

I develop **new empirical tests to statistically assess** the **pattern of alphas** after sorting for each of 205 published anomalies:

- Constant or time-varying?
- If time-varying, monotone or ripple?

**ripple pattern**: alternating increases and decreases in alphas over time.

## Results

**Alpha dynamics** provide new insights in evaluating whether anomalies:

1. **Exist** (or exist non-zero alphas): Relying solely on alpha-mean tests (e.g., t tests) may miss many real anomalies. This problem becomes more severe with higher thresholds (e.g., t cutoff of 3.0).
2. Are likely due to **mispricing or rational expectations**: 60% of anomalies exhibit a pattern of alphas more consistent with mispricing. Examples are share issuance, idiosyncratic volatility, and momentum.
3. **Profitable to trade on**: After-cost profitability has been significantly underestimated.

## Takeaway

- More published anomalies might be **real** and **profitable** to trade on.
- A large proportion of anomalies might be at least partially due to **mispricing**.
- We should study both the **alpha dynamic** and the **alpha mean** to better understand anomalies.

Studying how **alphas** of the characteristic-sorted portfolio ***evolve*** after the sorting date helps **better understand anomalies**


"Decoding Anomalies through Alpha Dynamics"

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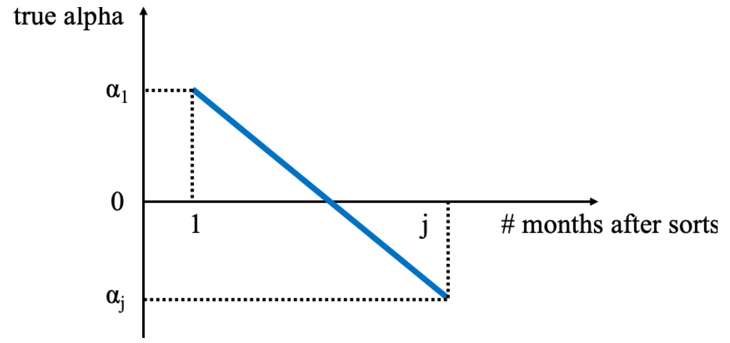
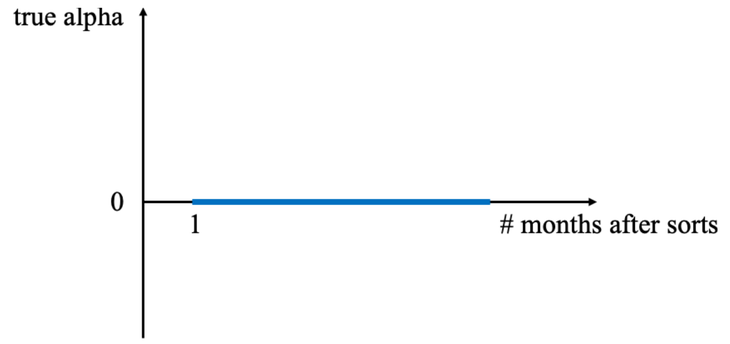
## Intuition

1. **Existence**: Alpha-mean tests are **inadequate**.

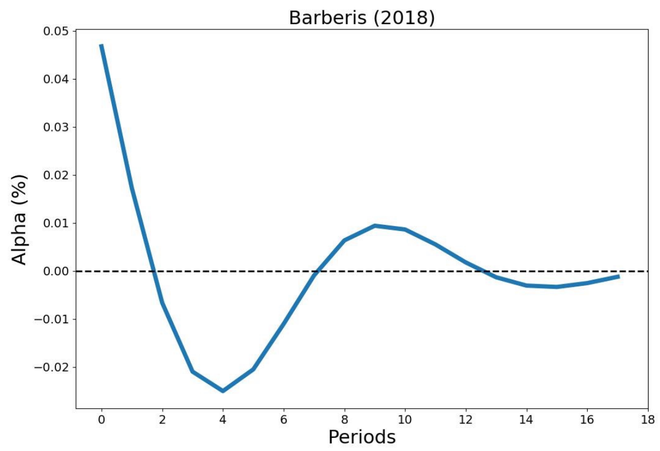
E.g., a build-up of mispricing followed by a resolution (positive alphas followed by negative alphas): **Alpha mean** could be indistinguishable from zero. **Alpha dynamics** can alleviate this problem.




**Alpha dynamics** also imply existence of non-zero alphas: the null implies not only zero alpha mean, but also constant alphas after sorting.




**2. Mispricing or rational expectations**: Behavioral models can imply a **ripple pattern** that is not seen in rational models. E.g., return extrapolation model of Barberis (2018).




**3. After-cost profitability**: **holding periods** should be determined jointly by **alpha dynamics** and **trading costs**.

- When **alphas are time-varying**, the holding period will affect the alpha mean.
- Holding periods also affect **rebalancing costs**.
- Thus, prior methods could be inappropriate (ad hoc or determined by turnover rates).