Discussion of: What You See Is Not What You Get: The Costs of Trading Market Anomalies

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Discussion Outline

- Clever empirical design to recover implementation costs of common factors

- Suggested areas for improvement
  - Adapt **methods** to *institutional setting* of mutual funds
    - Long-only
    - Characteristics- not covariances-based
  - Expand **Motivation** & **Interpretation**

First method (of two)

- Fama-Macbeth regression (returns on betas):

$$r_{it}^{e} = \alpha_i + \beta_i^{MKT} MKT_t + \beta_i^{SMB} SMB_t + \beta_i^{HML} HML_t + \beta_i^{MOM} MOM_t + \epsilon_{it}$$

$$r_{it}^{e} = \widehat{\beta_i}' \hat{\lambda}_{stocks,t} \cdot 1_{\{i \in Stocks\}} + \widehat{\beta_i}' \hat{\lambda}_{MFs,t} \cdot 1_{\{i \in MFs\}}$$

- Implementation costs (e.g., for HML):

$$\mathrm{IC}^{\mathrm{HML}} = \hat{\lambda}^{HML}{}_{stocks} - \hat{\lambda}^{HML}{}_{MFs}$$

Institutional setting: Strategies

- Anecdote: In my retirement account, I hold a (Vanguard)

small-cap value fund

fund, not (explicitly) a

positive-β^{SMB}/positive-β^{HML} fund

- Mutual funds do not try to mimic *HML,* but ***long-only characteristic-based*** strategies

- Consider incorporating hedge funds and smart-beta ETFs that do long-short strategies

Long-only effect: Small-value vs small-growth

- Two-fund example (SV and SG):
  - $\beta_{SV}^{MKT} = \beta_{SG}^{MKT} = 1$ and $\beta_{SV}^{SMB} = \beta_{SG}^{SMB} = 0.5$
  - $\beta_{SV}^{HML} = 0.5$ and $\beta_{SG}^{HML} = -0.5$.
  - $\lambda_{stocks}^{HML} = 8\%$, and $IC^{HML} = 6\% \;\Rightarrow\; \lambda_{MFs}^{HML} = 2\%$
  - $E(r_i) = \beta_i \cdot \lambda^{MKT} + \beta_i^{SMB} \cdot \lambda_{MFs}^{SMB} + \beta_i^{HML} \cdot \lambda_{MFs}^{HML}$
- Then:
  - $\alpha_{SV}^{FF3} = (1 \cdot \lambda^{MKT} + 0.5 \cdot \lambda^{SMB} + 0.5 \cdot 2\%)$
    $-(1 \cdot \lambda^{MKT} + 0.5 \cdot \lambda^{SMB} + 0.5 \cdot 8\%) = -3\%$
  - $\alpha_{SG}^{FF3} = (1 \cdot \lambda^{MKT} + 0.5 \cdot \lambda^{SMB} - 0.5 \cdot 2\%)$
    $-(1 \cdot \lambda^{MKT} + 0.5 \cdot \lambda^{SMB} - 0.5 \cdot 8\%) = +3\%$

Long-only effect: Small-value vs small-growth

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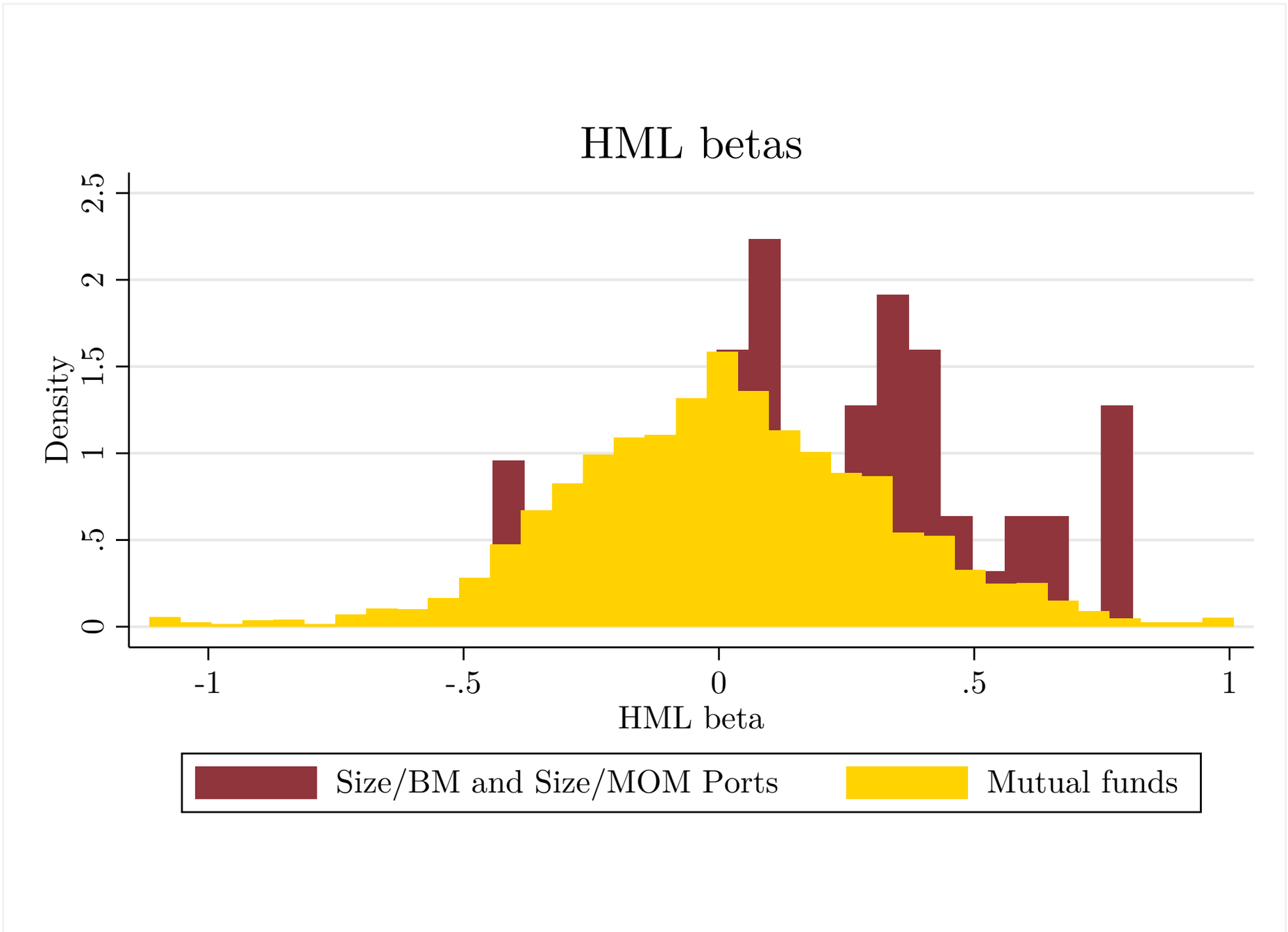
- **Takeaway**: the "implementation costs" are actually benefits to long-only funds with negative betas
  - You could even be picking up skill of funds with negative betas

Long-only effect: cont'd

- Indeed, many funds with negative HML betas who WANT a lower HML premium!

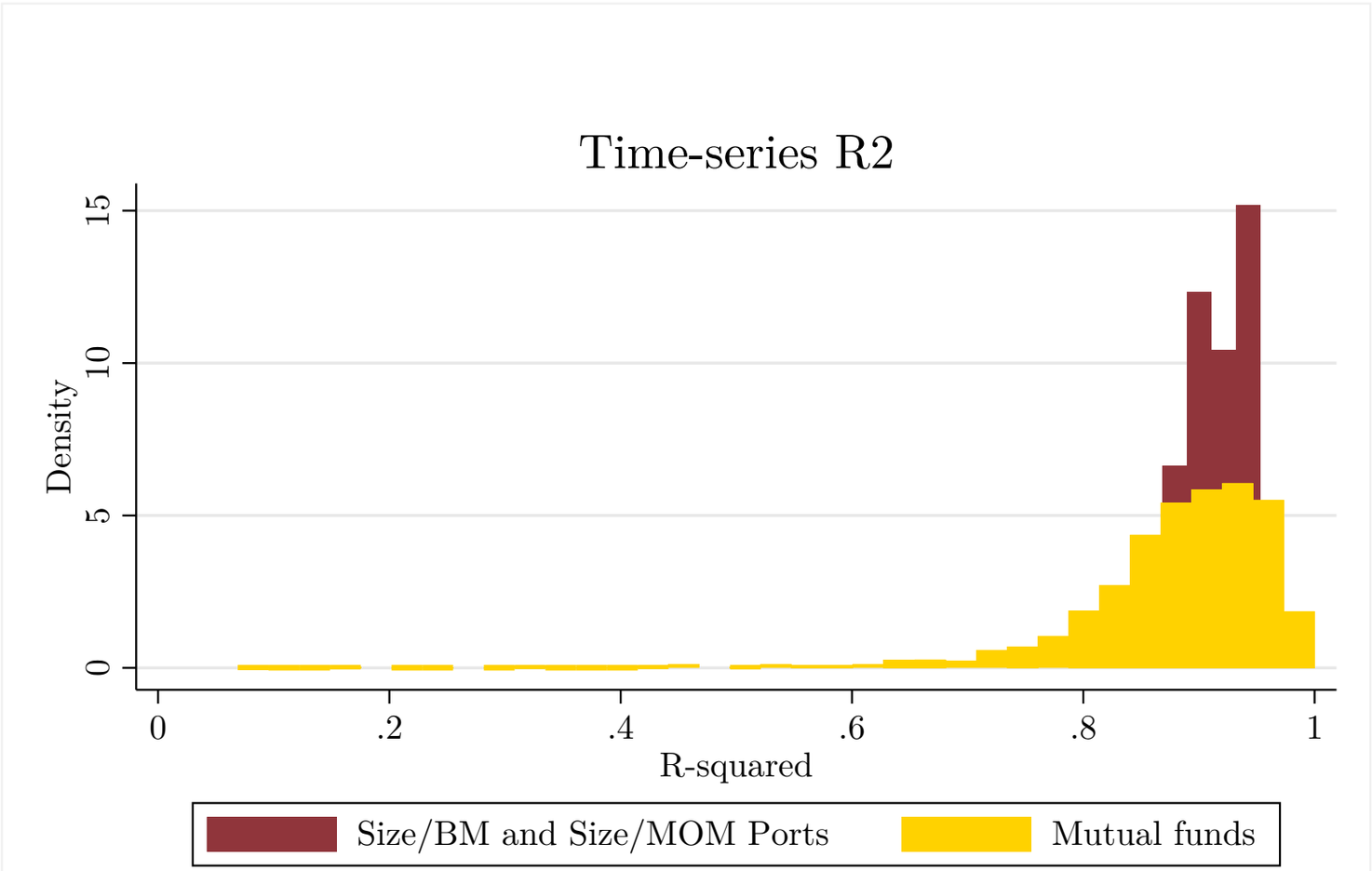


Errors-in-variables problem

- Betas on RHS are estimated:

$$r_{it}^{e} = \widehat{\beta_i}'\hat{\lambda}_{stocks,t} \cdot 1_{\{i \in Stocks\}} + \widehat{\beta_i}'\hat{\lambda}_{MFs,t} \cdot 1_{\{i \in MFs\}}$$

- The EIV bias is likely greater for **funds** than characteristics sorted portfolios.
  - E.g. Style migration of mutual funds (e.g. Fama French, 2007)



Characteristics-vs-covariances adjustment

- Mutual funds follow characteristics strategies (e.g. small value)
- Even when beta models are DGP, characteristics still explain returns better than *estimated* β's! (see, e.g., Lin et al, 2013)
  - Affects method 2---matching *characteristic-sorted* stocks with funds based on estimated β's

- Characteristic-adjusting mutual fund returns yields different conclusions than risk-adjusting returns:
  - E.g. Daniel et al (1997), Chen et al (2018)

- Why not get holdings data and estimate a characteristics based model?

$$r_{it}^{e} = a + b'_{stocks} x_{it} 1_{\{i \in Stocks\}} + b'_{MFs} x_{it} 1_{\{i \in MFs\}}$$
$$x_{it} = \left(size, BM, r_{12,2}\right)'$$
$$IC = b_{stocks} - b_{MFs}$$

- Eliminates the EIV problem!

Motivation & interpretation

- "*Is there a gap between the profitability of a trading strategy `on paper' and that which **can** be achieved in practice?"*

- Regression of DFA small-cap value excess return on Fama-French 3-factor model:

- DFA **can** capture HML premium just fine.

- DFA="typical" small-value fund

	(1) DFSVX	(2) HML
MKT	0.97***	-0.32***
	(21.73)	(-5.50)
SMB	0.81***	
	(13.53)	
HML	0.61***	
	(9.61)	
DFSVX		0.20***
		(5.01)
alpha	0.42	2.71
	(0.19)	(1.33)
N	297	297
adj. R-sq	0.73	0.09

Motivation & interpretation

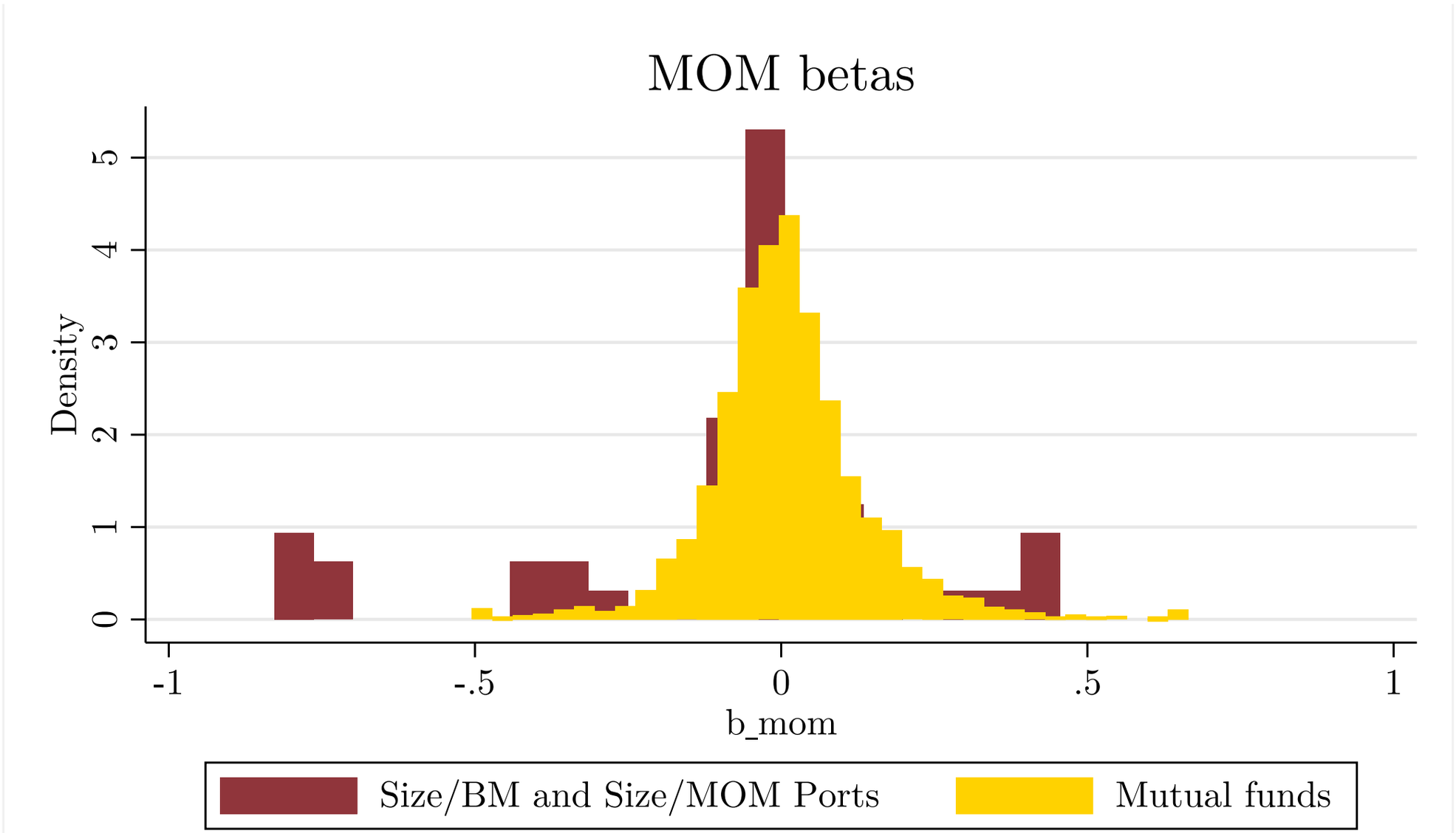
- *"Is there a gap between the profitability of a trading strategy `on paper' and that which **can** be achieved in practice?"*
  - We know the answer is yes---even if your measure is better
  - Empirics address:
    - whether funds *as a group **do*** achieve this profitability
    - And by **how much** they fall short

- Average mutual fund earns negative alpha (e.g., Carhart, 1997)
  - Incorporate skill?
    - One of the largest novelties of the measure!
  - How do Active IC's compare to passive IC's?

- IC=(+)stock-level trading costs (-)skill
  - Do managers do (otherwise) poor job with low implementation costs?
  - …or a good job with high implementation costs?
  - Critically impacts the ***can***

Long-only effect: Interpretation

- Momentum premium higher on SHORT leg
- Average fund has slightly positive MOM beta
  - MFs don't seem to short extreme loser stocks
  - Is it *implementation costs* if they are not trying?



Motivation & Interpretation

- *"Unlike existing approaches, these techniques deliver estimates of implementation costs without estimating parametric microstructure models from trading data or explicitly specifying factor trading strategies"*

- Why are your ICs directly comparable to those from prior literature?
  - They take real-ish stock-level costs and apply them to *"explicitly specified"* trading strategies (f_t)
  - $f_t - c(f_t)$ vs $f_t^{MF} - c(f_t^{MF})$
  - Others remove "skill"

- Consumers of transaction costs literature (like myself) need a way to correct their trading strategies for realistic trading costs
  - E.g. Detzel and Strauss (*RF* forthcoming).
  - Is there a way to apply your IC's to my trading strategies?
  - Two strategies with different turnover---but same betas---should not have same IC's

Motivation & Interpretation

- Many of the transaction costs studies cited struggle with estimating price impact and strategy capacity
  - E.g. Novy-Marx and Velikov (2016) use TAQ data

- Interesting comparison between *average* and *marginal* costs by comparing funds of different *size*.
  - However, large funds can invest small amounts in a strategy
    - Need to incorporate size*beta
    - Moreover, if large funds have such large impact that they earn a negative momentum premium, why haven't they eliminated the premium for other funds or even on paper?

- If we believe factor returns are compensation for risk, they should not be traded away
  - But if this is not this case, calls into question the use of a beta-model.

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