Empirical Asset Pricing: Mutual Fund Flow

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The Only Game in Town: Flow

- For any mutual fund manager, he or she must care about two issues, flow and α.
- However, if the manager only cares about one issue, it is flow.
- Mutual fund industry is based on the management fee, which is a fixed percentage of AMU.
- The AMU comes from accmulative net flow and net return.
- For most of the managers, they are not able to generate alpha, so they must care about the flow.

Berk and Green (2004)

- This is one seminal theory work in mutual fund literature. Several important questions could be summarised from it.
- Do mutual fund managers have before fee alpha or after fee alpha?
- All funds earns zero alpha after fee $E_t[r_{t+1}] = 0$, which means the fund managers just.
- Is alpha a good measure for the fund manager skill?
- No, alpha is a very bad measure for skill. In the long-run, only AUM is the good measure for skill.

Berk and Green (2004) (Cont')

- MF managers are informed, with skill α_i, which is the degree to out-perform a benchmark (SP500).
- Fund before fee return is $R_t^i = \alpha_i + \epsilon_t^i$.
- Skill distribution $\alpha^i \sim \mathcal{N}(\phi_0, \gamma^{-1})$.
- Luck distribution $\epsilon_t^i \sim \mathcal{N}(0, \omega^{-1})$.
- Trading cost $C(q)$, where q is the AUM: $C'(\cdot) > 0$, $C''(\cdot) > 0$.
- Intuition: The larger the fund's AUM, the larger the trading impact, the smaller the information advantage.
- After fee return: $r_{t+1} = R_{t+1} - \frac{C(q_t)}{q_t} - f = R_{t+1} - c(q_t)$.

Berk and Green (2004) (Cont')

- Investor would infer α^i from historical performance in Bayesian fashion from data $\{R_s\}_{s=0}^{t}$.
- Investor's fund supply is perfectly elastic, who will withdraw all asset with negative expected excess returns.
- Funds incur a fixed operational cost F. When revenues cannot cover the fixed cost, the fund exits voluntarily.
- When there is fund that exits, new fund are drawn from a skill distribution.

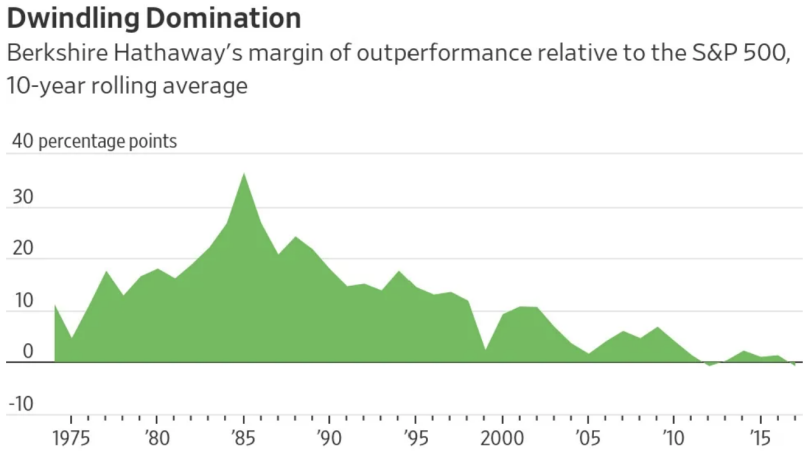
Berk and Green (2004) (Cont')

- In equilibrium, $E_t[r_{t+1}] = 0$. All funds earn zero expected excess return after fees.
- The core trade-off:
  1. funds with high-skill managers will have more positive realized excess return, and investors would upward the skill belief $\hat{\alpha}^i$.
  2. Accordingly, there will be more fund inflow to boost the AUM.
  3. High AUM will incure high cost.
  4. Until, the manager's alpha will be fully deteriorated by the increasing costs.
- Implication:
  1. No alpha does not mean no skill.
  2. AUM is a good measure for skill.
  3. fund in/out flow is a convex function of return or α:

$$\frac{q_t - q_{t-1}}{q_t} = \frac{r_t}{f}\left(\frac{\omega}{\gamma + t\omega}\right) + \frac{r_t^2}{4f^2}\left(\frac{\omega}{\gamma + t\omega}\right)^2.$$

Buffet's Alpha

- Buffet's alpha is decreasing with AMU increasing.



Skill controling Size: Berk and Binsbergen (2015)

- MF manager's skill should be measured by value extracted from markets.
- A manager who is in charge of a huge fund with a small α may create more value to clients than a manager who runs a small fund and has a large α.
- The create one measure to capture skill of manager as value added:

$$V_t^i = q_{t-1}^i (R_t^i - R_t^B).$$

- For T periods, the manager's skill is:

$$\widehat{S}^i = \frac{1}{T} \sum_{t=1}^{T} V_t^i.$$

Picking and Timing: Kacperczyk, Van Nieuwerburgh, and Veldkamp (2014)

- Previous works usually treat stock picking and market timing as two separate skills.
- KNV(2014) sharpely realize that we cannot separately treat fund manager's stock picking ability and market timing ability as two different ability (CS v.s. TS).
- Timing:

$$\text{Timing}_t^j = \sum_{i=1}^{N^j} (w_{i,t}^j - w_{i,t}^m)(\beta_{i,t} R_{t+1}^m),$$

- Picking:

$$\text{Picking}_t^j = \sum_{i=1}^{N^j} (w_{i,t}^j - w_{i,t}^m)(R_{t+1}^i - \beta_{i,t} R_{t+1}^m),$$

Picking and Timing: KNV (2014)

- Define a variable as TOP, which equals to 1 if one fund or fund manager's picking ability is in top 25% in boom.

Table IV
The Same Funds Switch Strategies

We divide all fund-month observations into recession and expansion subsamples. *Expansion* = 1 − *Recession*. *Top* is an indicator variable equal to one for all funds whose *Picking* in expansion is in the highest 25th percentile of the distribution, and zero otherwise. Control variables, sample period, and standard errors are described in Table I.

	Timing		Picking	
	Expansion (1)	Recession (2)	Expansion (3)	Recession (4)
Top	−0.001	0.037	0.059	−0.054
	(0.004)	(0.013)	(0.005)	(0.017)
Log(Age)	0.009	−0.015	−0.001	0.027
	(0.002)	(0.006)	(0.002)	(0.007)
Log(TNA)	−0.001	0.004	−0.001	−0.024
	(0.001)	(0.003)	(0.001)	(0.003)
Expenses	0.571	0.981	−0.985	−3.491
	(0.322)	(1.085)	(0.366)	(1.355)
Turnover	0.010	0.009	0.013	−0.005
	(0.003)	(0.008)	(0.004)	(0.012)
Flow	0.058	−0.852	0.127	−0.054
	(0.024)	(0.112)	(0.036)	(0.092)
Load	0.124	0.156	0.104	0.504
	(0.050)	(0.162)	(0.054)	(0.197)
Size	−0.009	−0.057	0.011	0.023
	(0.002)	(0.006)	(0.002)	(0.007)
Value	−0.018	−0.057	0.027	0.107
	(0.003)	(0.010)	(0.003)	(0.011)
Momentum	−0.007	−0.148	0.031	−0.007
	(0.003)	(0.010)	(0.004)	(0.011)
Constant	0.018	0.055	−0.022	−0.159
	(0.001)	(0.005)	(0.002)	(0.006)
Observations	204,311	18,354	204,311	18,354

Picking and Timing: Kacperczyk, Van Nieuwerburgh, and Veldkamp (2014)

- Data show that average stock picking is high in expansion. Average market timing is high in recession.

- It is he same group of funds that are good at both picking in expansion and timing in recession.

Ibert, Kaniel Nieuwerburgh and Vestman (2017)

- Question: are fund managers paid for skills? Yes, but not very much, at least not first order.
- They use Swedish actively managed fund compensation data.
- Main empirical specification:

$$\ln(L_{m,t}) = \alpha_m + \beta \ln(REV_{m,t}) + \gamma \ln(1 + R^{abn}_{t+1})_{t-1} + \delta X_{m,t-1} + \epsilon_{m,t},$$

where $REV_{m,t}$ is the revenue (fund size) and R^{abn}_{t+1} is alpha or excess return.

Ibert, Kaniel Nieuwerburgh and Vestman (2017)

- One STD increase in performance increase pay around 3%, Very low PPS.
- One STD increase in REV increase pay by 25%.

Table 3
Decomposing the effect of revenue on pay

	(1) $\log(L_{m,t})$	(2) $\log(L_{m,t})$	(3) $\log(L_{m,t})$	(4) $\log(L_{m,t})$	(5) $\log(L_{m,t})$	(6) $\log(L_{m,t})$	(7) $\log(L_{m,t})$
$\log(REV_{m,t})$	0.141***			0.140***			
	(0.0194)			(0.0195)			
$\log(REVorth_{m,t})$		0.144***	0.134***		0.144***	0.144***	0.130***
		(0.0194)	(0.0257)		(0.0193)	(0.0193)	(0.0255)
$\log(1+R^{abn}_{m,t})$						0.0646	0.253
						(0.151)	(0.194)
$\log(1+R^{abn}_{m,t-1})$				0.148	0.327*	0.325*	0.586**
				(0.176)	(0.174)	(0.170)	(0.236)
$\log(1+R^{abn}_{m,t-2})$							0.583***
							(0.200)
$\log(1+R^{abn}_{m,t-3})$							0.274*
							(0.158)
Constant	7.173***	9.509***	9.074***	7.212***	9.563***	9.561***	9.141***
	(0.595)	(0.639)	(0.894)	(0.602)	(0.646)	(0.645)	(0.904)
Manager FE	No	No	No	No	No	No	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Category FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	No	No	No	No	No
N	2,898	2,883	1,932	2,898	2,883	2,883	1,932
Adjusted R^2	0.229	0.233	0.182	0.229	0.234	0.234	0.190

See Table 2. The second, fifth, and sixth columns use as the independent variable the part of log revenue that is orthogonal to abnormal returns at time t and $t-1$. The third and seventh columns additionally orthogonalize revenue to abnormal returns at times $t-2$ and $t-3$.

Guercio and Tkac (2008)

- Question: what drives mutual fund's flow?
- They employ an event study method to study the effect of morning star rating on fund flow.
- They find that rating changes have a significant impact on fund flow.

Barber, Huang and Odean (2016): Investors Are a Littled Bit Sophisticated

- After so many years financial economimc education, investors should know how to analysis portfolio performance according to risk-loading.
- Yes, they do.
- Their flow to mutual fund is sensitive to α, but only CAPM α
- They are a little bit sophisticated, but not too much.

Ben-David, Li, Rossi and Song (2021): No, They Aren't

- Maybe scholars overestimate the sophistication of investors.
- Statistically, most of the investors do not respond to α.
- They repsond to raw return and Morning Star rating.

Hartzmark and Sussman (2019): They are sophisticated enough to care about persistence

- They employ the morning star's sustainability rating to study the effect of sustainability on fund flow.
- Due to the introduction happen to treat mutual find into two groups, they could argue that the results are causal.
- Investors do care about sustainability.

Akbas et al. (2015)

- Fund flow also impact the asset pricing.
- Dumb money would increase the mispricing, like growth, accrual and momentum effects.

Conclusion

- Mutual fund is a very important part of the financial market and still an very active area of research.

- For Chinese Mutual Fund research, the paper is definitely in the underdeveloped stage.