Time-Varying Skill & An Attention Allocation Theory of Mutual Funds

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Motivation

Do Mutual Fund Managers Have Skill?

• Big debate in the finance literature.
• Partial consensus: some stock-picking skill, no market timing.
• Skill has been regarded as immutable.

But what is skill?
  • Skill is information.
    • Only information allows you to systematically bet in the right direction.

• Might managers acquire different information at different times? Time-varying skill?
New Fact: Time-Varying Skill

Picking = ability to buy assets before earnings rise
Timing = ability to buy market risk before the economy turns up
Main Results

- **Empirical findings:**
  - Fund managers are good stock-pickers, but only in booms.
  - Fund managers are good market-timers, but only in recessions.
  - Managers who switch strategies earn excess returns.

  *Time-variation makes skill hard to detect.*
  *Skill is more salient in recessions.*

- **Why vary skill? (The theory)**
  - In recessions: 1) volatile macro shocks + 2) high price of risk.
    - 1) and 2) make macro information valuable (timing is everything).
    - Info is more valuable $\leftrightarrow$ Skill is more observable

- A tool to describe how funds add value:
  Rational information choices explain many fund patterns.
The Theory: A New Model of Mutual Funds

**Model:**
1. Managers choose information precision.
2. They choose portfolios to maximize risk-adjusted expected return.

It teaches us:
- Managers should switch strategies (change info processing).
- Volatility and price of risk work in the same direction.
- Strategy switching ↑es portfolio dispersion in recessions
- Makes outperformance rise in recessions (info is more valuable).

Test all three predictions.
Tease out volatility and price of risk effects.
Measures of Skill / Information

- We can’t see information processing. How do we measure it?
- Classic skill measures (picking / timing) are info measures. Reason: Actions cannot systematically covary with an outcome that is not known by the actor.

- \( \text{picking}_t^j \): covariance between portfolio and idiosyncratic return. measures information about firm-specific risk.

- \( \text{timing}_t^j \): covariance between portfolio and market return. measures information about aggregate risk

“portfolio” here means fund \( j \)’s portfolio weight, in excess of the market weight: \( w_{ti}^j - w_{ti}^m \)
Data description

- Actively managed open-end U.S. equity mutual funds (3,477)
- CRSP survivorship bias-free mutual fund database, January 1980 until December 2005 (312 months), merged with holdings data from Thomson Financial
- CRSP/Compustat stock-level database: return, market cap, book-to-market, momentum, liquidity, SUE
- Recessions: NBER dates (38 months)
  Alternatives: months with 1) highest 12% cash-flow volatility; 2) negative real consumption growth; 3) lowest 25% market returns; 4) real-time recc probability.
## Main findings

<table>
<thead>
<tr>
<th></th>
<th>Picking</th>
<th></th>
<th>Timing</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Recession</td>
<td>-0.068</td>
<td>-0.070</td>
<td>0.011</td>
<td>0.011</td>
</tr>
<tr>
<td></td>
<td>(0.016)</td>
<td>(0.015)</td>
<td>(0.004)</td>
<td>(0.004)</td>
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<tr>
<td>Constant</td>
<td>0.308</td>
<td>0.309</td>
<td>-0.001</td>
<td>-0.001</td>
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<tr>
<td>Controls</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
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</tbody>
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Control variables: Log(Age), Log(Assets), Expenses, Turnover, Flow, and Load

- **Magnitude**: recession effect is 10% of cross-fund stdev (both).
- **Other model predictions**: Dispersion and performance ↑ in recessions.

**Punchline**: Stock picking in booms and market timing in recessions.
Could it Be ... Instead?

A Composition Effect
- Observable manager characteristics do not change over the cycle.
- Results survive manager fixed effects.
- The best stock pickers in booms are the same managers who are the best market timers in recessions.

Mechanical Effects
- Simple fund strategies (pick randomly, pick high-\(\alpha\) stocks, mixed) do not generate cyclical skill in simulations.

Career concerns
- Young managers should herd more in recessions. We find the opposite.
Skill Index Predicts Performance

\[
\text{Skill Index}_{t+1}^j = w_t \text{Timing}_t^j + (1 - w_t) \text{Picking}_t^j
\]

<table>
<thead>
<tr>
<th></th>
<th>One Month Ahead</th>
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<th>One Year Ahead</th>
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<tbody>
<tr>
<td></td>
<td>CAPM alpha</td>
<td>4-factor alpha</td>
<td>CAPM alpha</td>
<td>4-factor alpha</td>
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<tr>
<td>Skill Index</td>
<td>0.202</td>
<td>0.094</td>
<td>(0.038)</td>
<td>0.197</td>
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<tr>
<td></td>
<td>(0.017)</td>
<td></td>
<td>(0.013)</td>
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</table>

- \( w_t \) is real-time recession probability.
- Timing and picking normalized to mean = 0 and \( stdev = 1 \).
- Alphas from a 12-month rolling window regression. Controls as before.

Takeaways

- Stock-picking and market-timing are not immutable skills. Skill is more general cognitive (or information-processing) ability that can be applied to different tasks at different times.

- Financial models should incorporate not just the risks of assets, but also how others pay attention to or process those risks.

- A more flexible, time-varying measure of skill does predict future returns.