

Asset Management and Performance Evaluation

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BUSI 448: Investments

Where are we?

Last time:

- Credit risk
- Credit ratings

Today:

- Economics of asset mgt
- Alphas
- Attribution Analysis
- Market Timing

Economics of Asset Management

Efficient Markets Theory

Market efficiency: Prices reflect all available information.

The “forms” of efficiency differ only in their definition of “all”:

- **Weak:** Prices reflect all historical trade data (past prices, trends, volumes, moving averages)
- **Semi-strong:** Prices reflect all publicly available information (SEC filings, news reports, etc.)
- **Strong:** Prices reflect all relevant information (public and private).

Grossman-Stiglitz Paradox

- Suppose all information is already reflected in prices
- If the cost of gathering information is large relative to the benefits that can be derived from trading on that information, investors will have no incentive to perform the necessary analysis.
- If all information is reflected in prices, then there is nothing to be gained from stock analysis.
- If no one has incentive to gather/analyze information, no one will be able to trade on said information.
- If no one can trade on the information, then how does the information get incorporated in the price?

Implications for market efficiency

The same intuition, in principle, applies to semi-strong form and weak-form efficiency:

- If there is nothing to be gained from fundamental analysis, no one will do it.
- If there is nothing to be gained from technical analysis, no one will do it.

What are the implications for market efficiency?

Equilibrium for Asset Management

Consider a world where

1. investors try to invest with skilled managers
 2. managers face decreasing returns to scale.
- Where will investors move their money?
 - What should happen to the performance (*in returns*) of skilled managers over time?
 - What will happen to underperforming funds?

Alphas

How should we evaluate managers?

- One way:

$$\text{Abnormal Return} = r_{\text{portfolio}} - r_{\text{benchmark}}$$

- How should we choose the benchmark?

Recall the Market Model Regression

$$r_{\text{portfolio},t} - r_{f,t} = \alpha_p + \beta_p(r_{m,t} - r_{f,t}) + \varepsilon_{p,t}$$

Alpha is a benchmark-adjusted average return!

$$\alpha_p = \frac{1}{T} \sum_{t=1}^T [r_{\text{portfolio}} - r_{f,t} - \hat{\beta}_p \cdot (r_{m,t} - r_{f,t})]$$

where the benchmark return is:

$$r_{\text{benchmark},t} = r_{f,t} + \hat{\beta}_p \cdot (r_{m,t} - r_{f,t})$$

Factor-model alphas

The alpha from the Fama-French-Carhart model

$$r_{p,t} - r_{f,t} = \alpha_p + \beta_p(r_{m,t} - r_{f,t}) + s_pSMB_t + h_pHML_t + m_pWML_t + \varepsilon_{p,t}$$

is also an average benchmark-adjusted return.

The benchmark return is:

$$r_{f,t} + \hat{\beta}_p \cdot (r_{m,t} - r_{f,t}) + \hat{s}_pSMB_t + \hat{h}_pHML_t + \hat{m}_pWML_t.$$

The benchmark-adjusted (active) return each period is:

$$\alpha_p + \varepsilon_{p,t}.$$

Today's first notebook

- We will estimate alphas for a large sample of actively managed mutual funds.
- What do you think the distribution of alphas will look like?
 - *Draw a histogram with the outcome variable being α*
- Can we predict funds leaving the sample?
- How important is survivorship bias?

Today's second notebook

- Let's assess the performance of a set of momentum ETFs.

Attribution Analysis

Understanding performance

- It is often useful to explain the source of a fund's performance. Such analysis is called **attribution analysis**
- We will consider attribution analysis based on the Fama-French-Carhart model.

FFC return components

We can write a portfolio's return each period as the sum of:

1. Active return: $\hat{\alpha}_p + \varepsilon_{p,t}$

2. Market benchmark: $r_{f,t} + \hat{\beta}_p \cdot (r_{m,t} - r_{f,t})$

3. Size exposure: $\hat{s}_p \cdot SMB_t$

4. Value/growth exposure: $\hat{h}_p \cdot HML_t$

5. Momentum exposure: $\hat{m}_p \cdot WML_t$

Today's third notebook

Let's run an attribution analysis for a fund by plotting the cumulative returns of each component over time.

Market Timing

Asset management skill

How can asset managers earn their fees?

- They may be good at picking stocks that will perform well in the future
- They may be good at timing the overall market.

Testing for Market Timing Ability

If we plot fund excess returns versus market excess returns, what should the shape of scatter plot look like for a successful market timer?

Henriksson-Merton Model

Consider the following model:

$$r_{p,t} - r_{f,t} = \alpha_p + b_p(r_{m,t} - r_{f,t}) + c_p(r_{m,t} - r_{f,t})^+ + \varepsilon_{p,t}$$

where $(r_{m,t} - r_{f,t})^+$ equals the market excess return if it is positive, and zero otherwise.

What should be true of c_p for successful market timers?

Today's fourth notebook

- Let's look at some examples of good and bad market timing.
- How does market-timing impact market-model alphas?

For next time: Taxes

