

Financial Anomalies

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Preface

The article is designed to study financial anomalies

1 Introduction

Fama and MacBeth (1973) two-parameter regression model estimates average risk-return relationships based on efficient market portfolio (m) constructed according to Equation 1 for an asset (i).

$$x_{im} \equiv \frac{\text{total market value of all units of assets } i}{\text{total market value of all assets}}$$

where asset(i) in the portfolio(m)

Equation 1 refers to the market equilibrium (market portfolio) is always efficient (Black (1972)).

Expected Return is given by Equation 1, β_i is the risk of the asset i of the portfolio m , measured relative to $\sigma^2(\tilde{R}_m)$

$$E(\tilde{R}_i) = [E(\tilde{R}_m) - S_m \sum \tilde{R}_m] + S_m \sigma(\tilde{R}_m) \beta_i, \quad (1.1)$$

where,

$$\beta_i \equiv \frac{\text{cov}(\tilde{R}_i, \tilde{R}_m)}{\sigma^2(\tilde{R}_m)} = \frac{\sigma_{j=1}^N x_{jm} \sigma_{ij}}{\sigma^2(\tilde{R}_m)} = \frac{\text{cov}(\tilde{R}_i, \tilde{R}_m) / \sigma(\tilde{R}_m)}{\sigma(\tilde{R}_m)}$$

$$S_m = \frac{E(\tilde{R}_m) - E(\tilde{R}_0)}{\sigma(\tilde{R}_m)}$$

hence

$$E(\tilde{R}_i) = E(\tilde{R}_0) + [E(\tilde{R}_m) - E(\tilde{R}_0)] \beta_i \quad (1.2)$$

Hence, Equation 1 refers that expected return on security i is $E(\tilde{R}_0)$, the expected return on a security that is riskless in the portfolio m , plus a risk premium that is β_i times the difference between $E(\tilde{R}_m)$ and $E(\tilde{R}_0)$

For each period of t , the cross sectional regression is given by

$$\begin{aligned}
R_{pt} &= \tilde{\gamma}_{0t} + \tilde{\gamma}_{1t}\tilde{\beta}_{p,t-1} + \tilde{\gamma}_{2t}\tilde{\beta}_{p,t-1}^2 + \tilde{\gamma}_{3t}\bar{s}_{p,t-1}\tilde{\epsilon}_i + \tilde{\eta}_{pt}, \\
p &= 1, 2, \dots, t
\end{aligned} \tag{1.3}$$

In Equation 1 the indepenent variable $\tilde{\beta}_{p,t-1}$ is the average of the $\tilde{\beta}_i$ for securities in portfolio p , $\tilde{\beta}_{p,t-1}^2$ is the average of the squared values of these $\tilde{\beta}_i$, $\bar{s}_{p,t-1}\tilde{\epsilon}_i$ is the average of $s\tilde{\epsilon}_i$ for portfolio p_i

2 Summary

In summary, this book has no content whatsoever.

References

- Black, Fischer. 1972. “Capital Market Equilibrium with Restricted Borrowing.” *The Journal of Business* 45 (3): 444–55.
- Fama, Eugene F, and James D MacBeth. 1973. “Risk, Return, and Equilibrium: Empirical Tests.” *Journal of Political Economy* 81 (3): 607–36.