Financial Anomalies

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Preface

The article is desiged to study financial anomalies

1 Introduction

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

$$x_{im} \equiv \frac{\text{total market value of all units of assets } i}{\text{total market value of all assets}}$$
$$\text{where asset}(i)\text{in the portfolio}(m)$$

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

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

$$E(\tilde{R_i}) = \left[E(\tilde{R_m}) - S_m \sum \tilde{R_m}\right] + S_m \sigma(\tilde{R_m})\beta_i, \tag{1.1}$$
$$\text{where,}$$
$$\beta_i \equiv \frac{cov(\tilde{R_i}, \tilde{R_m})}{\sigma^2(\tilde{R_m})} = \frac{\sigma_{j=1}^{N} x_{jm}\sigma_{ij}}{\sigma^2(\tilde{R_m})} = \frac{cov(\tilde{R_i}, \tilde{R_m})/\sigma(\tilde{R_m})}{\sigma(\tilde{R_m})}$$
$$S_m = \frac{E(\tilde{R_m}) - E(\tilde{R_0})}{\sigma(\tilde{R_m})}$$
$$\text{hence}$$
$$E(\tilde{R_i}) = E(\tilde{R_0}) + \left[E(\tilde{R_m}) - E(\tilde{R_0})\right]\beta_i \tag{1.2}$$

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

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

In Equation 1 the indepenent variable $\tilde{\beta}_{p,t-1}$ is the average of the $\tilde{\beta}_i$ for securities in portfolio p, $\tilde{\beta}^2_{p,t-1}$ 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.