# Financial Anomalies

Krishna Neupane

2024-08-24

# Table of contents

**Preface** **3**

**1 Introduction** **4**

**2 Summary** **6**

**References** **7**

# Preface

The article is desiged to study financial anomalies

# 1 Introduction

Fama and MacBeth (1973) : Two-parameter risk-return regression equation is based on Equation 1:

$$x_{im} \equiv \frac{\text{total market value of all units of assets } i}{\text{total market value of all assets}} \quad (1.1)$$
$$\text{where asset}(i)\text{in the portfolio}(m)$$

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

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

$$E(\tilde{R}_i) = \left[E(\tilde{R_m}) - S_m \sum \tilde{R_m}\right] + S_m \sigma(\tilde{R_m})\beta_i, \quad (1.2)$$

where,

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

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

hence

$$E(\tilde{R}_i) = E(\tilde{R}_0) + \left[E(\tilde{R_m}) - E(\tilde{R}_0)\right]\beta_i \quad (1.3)$$

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 $\beta_i$ 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

$$R_{pt} = \tilde{\gamma}_{0t} + \tilde{\gamma}_{1t}\tilde{\beta}_{p,t-1} + \tilde{\gamma}_{2t}\tilde{\beta}^2_{p,t-1} + \tilde{\gamma}_{3t}\bar{s}_{p,t-1}\tilde{\epsilon}_i + \tilde{\eta}_{pt}, \quad (1.4)$$
$$p = 1, 2, ...t$$

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.