Financial Anomalies

Krishna Neupane

2024-08-24

Table of contents

Preface

The article is desiged to study financial anomalies

1 Introduction

Fama and MacBeth (1973) show two-parameter regression model estimates average risk-return relationships based on efficient market porfolio (m), that is, the market prices fully reflect the available information. The asset are constructed based on Equation 1 for an asset (i) proposed by @Black (1972).

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

Excepted return of a 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 expected return of the portfolio ($E(\tilde{R_m})$) and riskless portfolio ($E(\tilde{R_0})$). is calculated by Equation 1, β_i is the risk of the asset i of the portfolio m, measured relative to $\sigma^2(\tilde{R_m})$

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

hence

$$
E(\tilde{R_i}) = E(\tilde{R_0}) + \left[E(\tilde{R_m}) - E(\tilde{R_0})\right] \beta_i \tag{1.2}
$$

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

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

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

Gupta and Ofer (1975) examines investors growth expectations reflected in the stock prices. A change in the expectation is reflected in the price movement.

$$\delta P_i^t = \frac{P_{it} - P_{it-1}}{P_{it-1}} \times 100 \tag{1.4}$$

where $\delta P_i^t$is the percent change of the security $i$during the period$t-1$to$t$

The average yearly percentage of the prices change for portfolio$j(\delta P_j)$is given by $$\delta P_j = \frac{\sum_{t=1}^{14} \frac{\sum_{r_t=10j-9}^{10j}}{b}}{14} \tag{1.5}$$

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.

Gupta, Manak C, and Aharon R Ofer. 1975. "INVESTORS'EXPECTATIONS OF EARNINGS GROWTH, THEIR ACCURACY AND EFFECTS ON THE STRUCTURE OF REALIZED RATES OF RETURN." *The Journal of Finance* 30 (2): 509–23.