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Abstract

This is a complete article template demonstrating citations and bibliography. We discuss the Capital Asset Pricing Model and the Fama-French factors.

1 Introduction

The Capital Asset Pricing Model (CAPM), developed by [Sha64], provides a framework for understanding the relationship between risk and expected return. This model laid the groundwork for decades of research in asset pricing.

2 The Fama-French Model

Building on the CAPM, [FF92] demonstrated that size and book-to-market factors explain a significant portion of cross-sectional variation in stock returns beyond what beta alone captures.

3 Mathematical Framework

The CAPM states that the expected return of an asset is:

$$E[R_i] = R_f + \beta_i(E[R_m] - R_f) \tag{1}$$

where R_f is the risk-free rate, R_m is the market return, and β_i measures the asset's sensitivity to market movements.

The Fama-French three-factor model extends this to:

$$E[R_i] - R_f = \beta_i^{MKT}(R_m - R_f) + \beta_i^{SMB} \cdot SMB + \beta_i^{HML} \cdot HML$$

4 Conclusion

Both [Sha64] and [FF92] represent foundational work in understanding asset returns.

References

[FF92] Eugene F Fama and Kenneth R French. The cross-section of expected stock returns. *The Journal of Finance*, 47(2):427–465, 1992.

[Sha64] William F Sharpe. Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance*, 19(3):425–442, 1964.