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Answering Financial Anomalies: Sentiment-Based Stock Pricing

Edward R. Lawrence, George McCabe & Arun J. Prakash

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Abstract

The efficient market hypothesis (EMH) assumes that investors are rational and value securities rationally. A rational investor would value a security by its net present value; the price of a stock in this framework is based on the discounted cash flow or the present value model. Although the EMH-based model is partially successful in computing fundamental stock prices, other anomalies such as high trading volume, high volatility, and stock market bubbles remain unexplained. These models assume rational investors who are utility maximizers. But some investors behave irrationally or against the predictions, and in the aggregate they become irrelevant. In this paper, we relax the assumption of investor rationality, and attempt to explain high volatility, high trading volume, and stock market bubbles by incorporating investor sentiment into the already existing asset pricing model.

keywords:

Notes

[1]We assume the dividends have extremely high growth g_s, where $g_s > r$ until time T. Afterward, we assume dividends grow at a constant rate g_n, where $g_n < r$. The current price of the high-growth stock is then:

$$P_0 = \frac{DIV_1}{(r - g_s)}\left[1 - \left[\frac{1 + g_s}{(1 + r)}\right]^T\right] + \frac{DIV_1(1 + g_s)^{T-1}(1 + g_n)}{(1 + r)^T * (r - g_n)}$$

[2]See Sharpe [1978, p. 315] for a fuller description of this method.

[3]Future dividends are computed from the current dividends and the growth rate. The discount rate is computed using CAPM. The growth rate is computed from the company-specific information (usually a multiple of ROE and the plowback ratio).

[4]For details about the formula and a description of each term, see Shleifer [2000, pp. 134–143].

[5]For a firm with abnormally high growth, Equation (3) can be modified accordingly.

[6]The remaining three companies were added much later to the Dow Jones Index.

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