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Stock market volatility, excess returns, and the role of investor sentiment

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Abstract

Using the Investors' Intelligence sentiment index, we employ a generalized autoregressive conditional heteroscedasticity-in-mean specification to test the impact of noise trader risk on both the formation of conditional volatility and expected return as suggested by De Long et al. [Journal of Political Economy 98 (1990) 703]. Our empirical results show that sentiment is a systematic risk that is priced. Excess returns are contemporaneously positively correlated with shifts in sentiment. Moreover, the magnitude of bullish (bearish) changes in sentiment leads to downward (upward) revisions in volatility and higher (lower) future excess returns. © 2002 Elsevier Science B.V. All rights reserved.

"What is important in market fluctuations are not the events themselves, but the human reactions to those events." (Bernard Baruch)

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1. Introduction

Underlying noise trader models in finance is the premise that subsets of agents trade in response to extraneous variables that convey no information about fundamentals. Early papers (Friedman, 1953; Fama, 1965) argue that noise traders are unimportant in the financial asset price formation process because trades made by rational arbitrageurs drive prices close to their fundamental values. Continuing evidence of market anomalies, for example, the underreaction and overreaction of stock prices and the closed-end mutual fund premium/discount puzzle, however, challenge efficient markets theory. The extent to which arbitrage can eliminate the divergence between prices and fundamental values has come into question in recent literature.

The notable work of De Long, Shleifer, Summers, and Waldmann (DSSW (1990) hereafter) models the influence of noise trading on equilibrium prices. Noise traders acting in concert on non-fundamental signals can introduce a systematic risk that is priced. In their model, the deviations in price from fundamental value created by changes in investor sentiment are unpredictable. Arbitrageurs betting against mispricing run the risk, at least in the short run, that investor sentiment becomes more extreme and prices move even further away from fundamental values. The potential for loss and the arbitrageurs' risk aversion reduce the size of positions they are willing to take. Consequently, arbitrage fails to completely eliminate mispricing and investor sentiment affects security prices in equilibrium.

The 'noise trader' model of DSSW has motivated empirical attempts to substantiate the proposition that 'noise trader' risks influence price formation. [3] Since closed-end fund shares are primarily held by individual investors, Lee, Shleifer and Thaler (LST (1991) hereafter) infer that fluctuations in closed-end fund discounts proxy for changes in investor sentiment. They find that changes in closed-end fund discounts are highly correlated with the returns on small capitalization stocks that are predominantly held by individual investors. Neal and Wheatley (1998) also find that (larger) closed-end fund discounts predict (higher) small firm returns, [4] and that net redemption captures the investor sentiment in closed-end fund discounts. Surprisingly, another popular measure of investor sentiment, the odd-lot sales to purchases, appears to have no ability to predict small or large firm returns.

Similarly, Bodurtha et al. (1995) report that changes in country fund discounts reflect a previously unidentified risk factor, which they conclude, is related to the sentiment of US investors. Using household data, Kelly (1997) also shows that the likelihood an individual is a noise trader diminishes with income; that is, a high participation of low-income households (noise traders) in the equity market is associated with a low participation by high-income households (smart money or informed traders). Moreover, a high participation of low-income households (noise

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[3] There are two additional theoretical papers on noise trading and its implications on asset prices. Barberis et al. (1998) present a model of investor sentiment that explains the underreaction and overreaction of stock prices. In contrast to DSSW (1990), Bhushan et al. (1997) show that myopia is neither a sufficient nor a necessary condition for noisy asset prices.

[4] But changes in closed-end fund discounts are unrelated to future large firm returns.