



# Stock returns, aggregate earnings surprises, and behavioral finance<sup>☆</sup>

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Received 5 February 2003; received in revised form 24 May 2004; accepted 24 June 2004  
Available online 30 September 2005

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## Abstract

We study the stock market's reaction to aggregate earnings news. Prior research shows that, for individual firms, stock prices react positively to earnings news but require several quarters to fully reflect the information in earnings. We find a substantially different pattern in aggregate data. First, returns are unrelated to past earnings, suggesting that prices neither underreact nor overreact to aggregate earnings news. Second, aggregate returns correlate negatively with concurrent earnings; over the last 30 years, for example, stock prices increased 5.7% in quarters with negative earnings growth and only 2.1% otherwise. This finding

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<sup>☆</sup>We are grateful to Nicholas Barberis, John Campbell (the referee), Dan Collins, Leonid Kogan, Jun Pan, Bill Schwert, Tuomo Vuolteenaho, Ross Watts, and workshop participants at Arizona State University, Boston College, University of Iowa, Massachusetts Institute of Technology, University of Pittsburgh, University of Rochester, University of Southern California, the Q-Group's 2003 Spring seminar, the 2003 APJAE Symposium, and the 2005 AFA meetings for helpful comments. We thank Irfan Safdar for excellent research assistance.

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suggests that earnings and discount rates move together over time and provides new evidence that discount-rate shocks explain a significant fraction of aggregate stock returns.

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*JEL classification:* E31; E32; G12; G14; M41

*Keywords:* Stock prices; Earnings; Business cycles; Discount rates; Expected returns

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## 1. Introduction

This article studies the stock market's reaction to aggregate earnings news. Prior research shows that stock prices for individual firms react positively to earnings news but require several quarters to fully reflect the information in earnings, an empirical finding known as "post-earnings announcement drift" (see Kothari, 2001, for a literature review). Our goal is to test whether post-earnings announcement drift shows up in aggregate data and, more broadly, to understand the connection between market returns and aggregate earnings surprises.

The motivation for our study is twofold. First, we provide a simple out-of-sample test of recent behavioral theories, including Bernard and Thomas (1990), Barberis et al. (BSV) (1998), and Daniel et al. (DHS) (1998). Those studies all cite post-earnings announcement drift as a prime example of the type of irrational price behavior predicted by their models. Our reading of the theories suggests that, although they are motivated by firm-level evidence, the biases they describe should also affect aggregate returns. While we do not view our paper as a strict test of the models, our analysis is in the spirit of asking whether the theories can "explain the big picture" (Fama, 1998, p. 291). More generally, establishing whether the same behavioral biases affect firm-level and aggregate returns should help theorists refine models of price formation.

Second, we study the market's reaction to aggregate earnings news to better understand the connections among earnings, stock prices, and discount rates. A large empirical literature tests whether stock prices move in response to cash-flow news or discount-rate news, but the importance of each remains poorly understood (see, e.g., Campbell and Shiller, 1988b; Fama and French, 1989; Fama, 1990; Campbell, 1991; Cochrane, 1992; Vuolteenaho, 2002; Hecht and Vuolteenaho, 2003; Lettau and Ludvigson, 2004). Our tests provide direct evidence on the correlation between earnings growth and movements in discount rates. Further, we argue that the market's reaction to aggregate earnings news provides interesting indirect evidence.

Our initial tests mirror studies of post-earnings announcement drift in firm returns. Bernard and Thomas (1990) show that, at the firm level, price drift matches the autocorrelation structure of quarterly earnings: positive for three quarters then negative in the fourth. They conclude that investors do not understand the time-series properties of earnings (see also Barberis et al., 1998). Our first key result is that aggregate earnings are more persistent than firm earnings, yet there is no evidence of

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