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Prospect theory, analyst forecasts, and stock returns

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Abstract

This paper documents how prospect theory can be used to explain stock returns and analysts' forecast behavior. Positive earnings surprises are associated with increases in abnormal returns but negative earnings surprises have only a limited negative impact on returns. We find that analysts display asymmetric behavior towards positive and negative earnings growth. Analysts' forecasts are found to be accurate during periods of positive earnings growth, but overly optimistic during periods of negative earnings growth. Our findings have implications for the structuring of investment products, as well as the role of market timing in their introduction.

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1. Introduction

This paper studies how analysts and investors react to positive and negative events. We analyze the difference in forecast errors that analysts make during both positive and negative earnings growth periods and document the role that investor sentiment plays in the earnings expectation process. Following Tversky and Kahneman's (1979) *prospect theory*, we analyze the influence of positive and negative earnings surprises. They have demonstrated how behavioral influences prevent investors from making rational choices and propose a

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value function whereby the disutility of a loss is much greater than the utility of a gain of the same magnitude.

A major contribution of this paper is the use of prospect theory to explain asymmetric stock market reactions resulting from an earnings surprise. [Tversky and Kahneman \(1991\)](#) find that investors suffer a much greater disutility during a loss and are reluctant to realize their losses during negative earnings surprise. Although [Levis and Liodakis \(2001\)](#) find that earnings surprise has an asymmetric impact on growth stocks and value stocks, they do not compare the asymmetric impact of positive and negative earnings surprise on abnormal stock returns, nor link such asymmetric abnormal returns to prospect theory.

We find that stock returns react strongly to positive earnings surprise, but negative earnings surprise has no significant impact on returns, implying the presence of investor loss aversion where they are reluctant to realize their losses. We also find that, while analysts are accurate during positive earnings growth, their forecasts are highly optimistic during negative earnings growth. The level of positive forecast error increases as the absolute amount of negative earnings growth increases. While [Amir and Ganzach \(1998\)](#) and [Ashiya \(2002\)](#) found that analysts are over-optimistic when they revise their forecasts downwards, and [Hofstedt \(1972\)](#) reported that forecasters are reluctant to predict negative earnings growth, prior research did not examine the relationship between forecast error and earnings growth. We document that large, overly optimistic forecast errors during periods of negative earnings growth are associated with the presence of positive investor sentiment.

Our findings have important implications. First, we provide an empirical test of prospect theory from the stock market effects of earnings announcements. Second, capital-guaranteed investment products may be popular with investors due to investor loss aversion. Third, investor loss aversion indicates that there is usually sufficient time to cut losses after the announcement of a negative event. Fourth, launching new financial products during times of positive sentiment is likely to induce a positive response due to over-optimism, even if the yield or earnings growth from the security could be below expectations.

The remainder of the paper is organized as follows. [Section 2](#) reviews the prior related literature. [Section 3](#) describes the data and [Section 4](#) presents our research methodology and hypotheses. The findings are reported in [Section 5](#). [Section 6](#) summarizes and concludes.

2. Literature review

Utility theory and prospect theory share some similarities. Both recognize that utility from wealth is distinct from the actual monetary value of wealth. Hence, they analyze the satisfaction that a person would derive from his current wealth or a change in his wealth. Both theories also predict that investors are risk averse in gains, i.e., increases in wealth have diminishing marginal utility. However, they have three main differences. First, utility theory evaluates utility from the final states of wealth, which includes wealth from the prospect and other existing assets, whereas prospect theory evaluates the value of a prospect from a change in wealth due to a prospect ([Tversky and Kahneman, 1979](#)). Second, utility theory uses stated probabilities to find the expected utility, where expected utility is the summation of utilities from each possible outcome, weighted by the probability of occurrence for each potential outcome. Prospect theory, however, uses decision weights in its value function.

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