Pacific-Basin Finance Journal 17 (2009) 494–505

Contents lists available at ScienceDirect

Pacific-Basin Finance Journal

www.elsevier.com/locate/pacfin

The conservatism bias in an emerging stock market: Evidence from Taiwan☆

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ARTICLE INFO

Article history:
Received 24 July 2006
Accepted 21 December 2008
Available online 9 January 2009

Jel classifications:
D81
G12
G15

Keywords:
Behavioral finance
Conservatism bias
Representativeness heuristic

ABSTRACT

Behavioral theories predict that investors underreact to earnings announcements stemming from the conservatism bias and overreact to a string of earnings news due to representativeness heuristic. This paper thus examines trading strategies of buying past high EPS growth stocks and selling past low EPS growth stocks over 4 to 20 quarters. The results generally support conservative reactions in the medium-term horizon, but provide little support for the over-use of representativeness heuristic on the long-term horizon. Moreover, we find that investors react differently to the consistency sequences of the two extreme earnings growth portfolios.

1. Introduction

In recent years the finance literature has documented two market anomalies: underreaction and overreaction. Barberis et al. (1998) attribute these two findings to human psychological biases — namely, conservatism and representativeness heuristic — in which investors misreact to a string of news such as earnings announcements. Empirical and experimental evidence unfortunately shows mixed results. Chan et al. (2004) and Durham et al. (2005) provide little support for the parsimonious model of Barberis et al. (1998), while some studies are supportive (e.g. Bloomfield and Hales, 2002; Frieder, 2004). A common feature of these studies is that they all use U.S. market data.[1] In this paper we provide empirical tests using

☆ We have benefited from the suggestions and comments by an anonymous referee and Ghon Rhee (the editor). All remaining errors are the responsibility of the authors.

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[1] For example, Chan et al. (2004) and Frieder (2004) use U.S. securities exchange data. Durham et al. (2005) test college football wagering market data in the United States. Bloomfield and Hales (2002) conduct laboratory experiments with MBA student subjects.

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doi:10.1016/j.pacfin.2008.12.002

data from the Taiwan Stock Exchange (TSE), uncovering additional insights into the heuristic simplification of investors.

In the model hypothesized by Barberis et al. (1998), investors do not realize that earnings follow a random walk. They misperceive that earnings belong to either a mean-reverting regime (in which investors react slowly to earnings announcements and exhibit conservatism) or a trending regime (in which investors extrapolate past earnings trends and show representativeness). These two behavioral biases accommodate the predictability of momentum and reversal in returns. However, Chan et al. (2004) fail to provide evidence of returns' predictability using U.S. market data. They identify the possibility of considerable arbitrage in the U.S. market, which quickly removes systematic mispricing resulting from investors' information processing biases.

Taiwan's stock market is mainly dominated by domestic individual investors who constituted about 92% of market volume in 1990, but who still made up 71% by 2006. Chui and Wei (1998) find that Taiwan has the largest standard deviation of monthly excess returns among the five Pacific-Basin emerging markets.[2] Titman and Wei (1999) attribute this high volatility phenomenon probably to the *investor sentiment* story, because of the pervasive low level of sophistication encountered in this market. There is on average about one brokerage account per family,[3] and trading costs are extremely low for small investors. This peculiar characteristic in Taiwan's stock market enables us to test the prevalence of investors' behavioral biases.

According to Barberis et al. (1998), the most relevant variables in their model should be the sequences of earnings. We characterize earnings as earnings per share (EPS) due to its salience and availability, whereby what analysts or investors are most concerned about is the improvement or deterioration of EPS.[4] Consequently, to formalize the sequential arrival of earnings information, we use quarterly EPS data to track the trends and sequences of listed firms' earnings.[5]

Most listed firms in Taiwan have fiscal years ending in December and are required to publish their quarterly financial statements to the market. Thus, investors regularly receive the same monthly extent of accounting performance reports for nearly all listed firms during the same period of time. While the fiscal periods of U.S. companies are clustered in June, September, and December fiscal year-ends (Asthana and Balsam, 2001), the sequences of financial statement releases are non-synchronous in terms of monthly performance measures. In addition, not all countries require listed firms to prepare quarterly financial reports. Taking the United Kingdom as an example, the London Stock Exchange only requires listed companies to submit interim (semiannual) and annual reports. Realizing these environmental differences will help increase our understanding of how earnings sequences have impacts on investors' behavior.

When investors overreact or underreact to the trends and sequences of EPS growth, then implementing trading strategies of buying past high EPS growth stocks and selling past low EPS growth stocks generates either negative or positive results. Thus, we examine different time horizons from 4 to 20 quarters of past EPS growth in conjunction with holding periods ranging from 3 to 12 months. Doing so gives a set of 20 trading strategies.

We find that the raw return behavior is predictable in the medium-term horizon. In other words, there is an underreaction to the high and low growth trends which represents an implication of the conservatism bias. After controlling for the Carhart four-factors, the underreaction still exists in the medium-term horizon. The low growth portfolios are somewhat riskier than high growth portfolios in terms of the market beta, size, and book-to-market factors.

Once investors perceive a firm as extremely high (low) growth, then consistent sequences of EPS growth lead investors to fall into the trending regime, and they overreact. On the other hand, inconsistent sequences of EPS growth lead investors to stay in the mean-reverting regime, and they underreact. The results show an asymmetric reaction in the consistency tests of the two separately high and low growth portfolios. The differences in returns between consistent and inconsistent sequences are insignificant. Few exceptions occur at a 20-quarter horizon which shows return reversals with an implication of

[2] The five Pacific-Basin emerging markets are Hong Kong, South Korea, Malaysia, Taiwan, and Thailand.

[3] In 1993 the population in Taiwan was 20.9 million and the number of brokerage accounts was 5 million (Titman and Wei, 1999, p. 43). At the end of 2006, the population in Taiwan was approximately 23 million and there were 7.9 million brokerage accounts.

[4] We are grateful to an anonymous referee for providing this insight.

[5] The annual earnings numbers are meaningless in this context, as the accumulation of the first quarter to the fourth quarterly financial data comprises a firm's annual data.