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Pacific-Basin Finance Journal 14 (2006) 291–310
PACIFIC-BASIN FINANCE JOURNAL
www.elsevier.com/locate/pacfin

Effects of order flow imbalance on short-horizon contrarian strategies in the Australian equity market

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Received 23 February 2004; accepted 29 September 2005
Available online 27 January 2006

Abstract

We use Lo and MacKinlay's [Lo, A.W., MacKinlay, C., 1990. When are contrarian profits due to stock market overreaction? The Review of Financial Studies 3, 175–205] contrarian portfolio approach to examine the profitability of short-horizon contrarian strategies in the context of the Australian Stock Exchange. The results show that simple contrarian strategies lead to small but still statistically significant profits when applied to daily and intra-day portfolio formation. However, the profits are not sufficient to cover transaction costs for institutional investors. The source of contrarian profits is also analyzed leading to the conclusion that stock market overreaction is found to be the primary source of contrarian profits. We also examine the relation between the degree of return reversal and order flow activity after abnormal price changes. We find that the degree of return reversal is positively related to the level of order flow imbalance. Larger profits are generated from order flow based contrarian strategies when the order flow imbalances are high.

JEL classification: G10; G14
Keywords: Contrarian strategies; Order flow; Market overreaction; Return autocorrelation

1. Introduction

Some empirical studies suggest price movements in the stock market are to some extent predictable based on past price history. This view is largely based on empirical evidence that a contrarian strategy of buying previous losers and selling previous winners generates significant profits. For example, Lehmann (1990) has documented evidence of statistically significant

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0927-538X/$ - see front matter
doi:10.1016/j.pacfin.2005.09.002

profits using contrarian strategies over weekly returns, even after corrections for plausible transaction costs.[1] However, the interpretation of the sources of contrarian profits have been heavily debated in the finance literature. Some research such as Conrad et al. (1997) and Boudoukh et al. (1994) argue that the majority of contrarian profits are due to market microstructure biases like nonsynchronous trading and bid–ask spreads. They find contrarian profits would disappear once these errors are accounted for.

Another stream of research hypothesizes contrarian profits come from stock market overreaction. For example, Jegadeesh and Titman (1995a) suggest that investors overreact to information, and consequently a subsequent correction generates negative correlation in stock returns. Contrarian strategies could then be profitable because in the presence of negative autocorrelation, current losers would become future winners and current winners then become losers.

The suggestion that stock market overreaction is the only source of contrarian profits has been questioned by Lo and MacKinlay (1990). They have proposed return forecastability across securities is another important source of contrarian profits. They have argued that even when there is no stock market overreaction and an individual security's returns are serially independent, a contrarian strategy can still be profitable simply because of price lead–lag effects among securities.

The first objective of this paper is to adopt Lo and MacKinlay's (1990) contrarian portfolio methodology and to investigate both the profitability and the sources of contrarian strategies on daily and hourly horizons in the context of the Australian market. With the majority of prior research based on the US market, there are relatively few papers that have examined contrarian strategies in a non-US context.[2] Prior research examining the profitability of contrarian strategies over time scales shorter than weekly returns is also relatively scarce.

The second objective is to investigate the role of trading activity and liquidity in explaining return reversals and overreaction. Some researchers have argued that return reversals and overreaction are results of irrational trading behaviour. Another possibility is that as the market lacks sufficient liquidity to dissipate unexpected price pressures, this results in short-term return reversals. We analyze the relation between return reversals and order flow imbalance, which is a measure of liquidity pressure and trading activity first proposed by Chordia et al. (2002), by examining order imbalances following large price changes.

Trading and liquidity measures can also convey information that cannot be deduced from share prices. Traders are generally divided into informed and uninformed traders in the market microstructure literature. Since informed traders would want to trade larger quantities when they have valuable information, uninformed traders would interpret excess liquidity demand as an indication of private information. A number of authors have studied whether trading information can help explain stock returns. For example, Blume et al. (1994) show that "volume provides information on information quality that cannot be deduced from the price statistic." Conrad et al. (1994) find price reversals for heavily traded securities and price continuation for low volume

[1] Other papers have also found contrarian strategies are profitable over longer time scales. Jegadeesh (1990) has examined monthly returns of individual stocks and found "the negative first-order serial correlation in monthly stock returns is highly significant", while Conrad and Kaul (1998) have further shown that contrarian strategies are apparently profitable over even longer terms (3 to 5 years).

[2] For example, Hameed and Ting (2000) have investigated the short-term predictability of stock returns on the Malaysian stock market.