



Individual and institutional herding and the impact on stock returns: Evidence from Taiwan stock market

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ABSTRACT

Using high frequency intraday data, this paper investigates the herding behavior of institutional and individual investors in the Taiwan stock market. The study finds evidence of herding by both investors but a stronger herding tendency among institutional than among individual investors. Institutional investors herd more on firms with small capitalizations and lower turnovers and they follow positive feedback strategies. The portfolios that institutional investors herd buy outperform those they sell by an average of 1.009% during the 20 days after intense trading episodes. By contrast, individual investors herd more on firms with small sizes and higher turnovers, and they crowd to buy (sell) stocks with negative (positive) past returns. The portfolios that individual investors herd buy underperform those they sell by an average of -0.829% during the following 20 days. Moreover, these return differences of both investors are more pronounced under a market with higher pressure and among small stocks. These findings suggest that the herding of institutional investors speeds up the price-adjustment process and is more likely to be driven by correlated private information, while individual herding is most likely to be driven by behavior and emotions.

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1. Introduction

This paper examines the herding behavior of different types of investors. Herding describes the tendency of investors to cumulate on the same side of the market or to follow the lead of others when they trade. The bulk of the research examines and confirms institutional investors' herding behavior. However, do individual investors herd for the same reason as institutional investors? Does market pressure, such as volatile market conditions, affect herding? Does the herding behavior of different types of investors destabilize stock prices or speed up the price adjustment? The aim of this paper is to answer these questions.

There are several theories explaining why investors show similarity in their behavior. Generally, the causes of herding can be separated into two types: information-driven and behavior-driven (Bikhchandani & Sharma, 2001; Kremer, 2010). Each herding type affects market efficiency differently. Information-driven herding may indicate that investors are facing similar decision problems and receiving correlated private information (e.g., Hirshleifer, Subrahmanyam, & Titman, 1994). Similar educational and professional backgrounds may also be a cause of herding as, for example, when a group of investors trades on stocks with certain characteristics, such as liquidity and size (e.g., Falkenstein, 1996). Finally, investors may herd because they are

following similar trading strategies. Momentum investment, i.e., positive feedback trading, is a manifestation of this kind of herding (e.g., Froot, Scharfstein, & Stein, 1992). As these illustrations indicate, information-driven herding results from fundamentals and affects stock prices in a stabilizing manner.

By contrast, behavior-driven herding occurs when investors follow others; this kind of trade may destabilize the market. According to the informational cascade model, observing private information about the trading behavior of others may cause a large number of investors with no common bond to reverse their decisions, resulting in an informational cascade (e.g., Banerjee, 1992; Bikhchandani, Hirshleifer, & Welch, 1992). Concern for reputation is another cause of behavior-driven herding. Professional investors may disregard their private information and trade with the crowd because they are subject to the reputation risk of trading in a contrarian manner (e.g. et al., 1990).

Two lines of empirical studies of herding have developed. One group of the literature examines the existence of herding from the view of the whole market (e.g., Chang, Cheng, & Khorana, 2000; Chiang & Zheng, 2010; Christie & Huang, 1995; Demirer & Kutan, 2006; Lao & Singh, 2011). Beginning with Christie and Huang (1995) and Chang et al. (2000), a series of empirical studies examined the existence of herding by observing the cross-sectional standard deviation of returns (CSSD) and cross-sectional absolute deviation (CSAD). Chang et al. (2000) find no evidence of herding in the US and Hong Kong, partial evidence in Japan, but significant evidence

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of herding in Taiwan and South Korea. Demirev and Kutan (2006) find that herd formation does not exist in Chinese markets, while Lao and Singh (2011) find significant evidence of herding in China and India and demonstrate that herding behavior is more pronounced during large market movements. Using a sample of 18 countries, Chiang and Zheng (2010) find evidence of herding in advanced stock markets (except the US) and in Asian markets and show that crises trigger herding in one country, which then spreads out to neighboring countries.

The other line of the literature investigates the herding behavior of specific groups of investors. Empirical evidence of herding is mostly found among institutional investors, especially in mutual funds (e.g., Lakonishok, Shleifer, & Vishny, 1992; Nofsinger & Sias, 1999; Shyu & Sun, 2010; Sias, 2004; Wermers, 1999). Lakonishok et al. (1992) find a higher level of herding among pension fund managers in small firms. Wermers (1999) finds evidence of herding in mutual funds, especially growth-oriented funds, among the trades of small firms. Shyu and Sun (2010) show the herding tendency of institutional investors in the Taiwan stock market. However, fewer studies have explored individual herding behavior. Barber, Odean, and Zhu (2009a, b) identify trades from individuals by order size and report that individual investors' buying and selling activities are strongly correlated within the month and over time. They conclude that individual investors herd and that their coordinated trading preferences are persistent. Goodfellow, Bohl, and Gebka (2009) find evidence of individual herding only during a bearish market. In this study, the existence of herding by both institutional and individual investors is examined. Moreover, the determinants affecting herding behavior and the factors driving investors to crowd together are also investigated.

To examine what drives herding, it is necessary to investigate the determinants of herding and its impact on stock price. Lakonishok et al. (1992) and Shyu and Sun (2010) find higher institutional herding in small firms and regard that as evidence of the informational cascade. Grinblatt, Titman, and Wermers (1995) and Wermers (1999) find a positive correlation between institutional investors' herding and the magnitude of past returns. As to the impact on stock price, Wermers (1999) finds that mutual fund herding has a permanent effect on subsequent stock price and argues that these results are consistent with fundamentals-driven herding not with reputational concerns. However, Puckett and Yan (2008) find return reversals following the sell herding of institutional investors and return continuations following their buy herding. They conclude that the sell herding of these investors is driven by sentiment and destabilizes the market. As for individual investors, Barber et al. (2009b) find that stocks heavily bought by individual investors outperform those heavily sold for three to four weeks and that the pattern reverses for the next several weeks. Their results suggest that individual herding destabilizes the market and is thus most likely to be behavior-driven.

This study investigates the existence and extent of institutional and individual herding in the Taiwan stock market using a complete dataset containing traders' identities. In addition, the study also examines herding in volatile markets and the interaction between herding and subsequent prices. The sample window herein covers two volatile periods. By exploring herding behavior and the interaction of these changes with stock returns in a volatile market, the author expects that the findings will help identify the factors that drive different types of herding.

This study makes three contributions. First, it focuses on the herding of both institutional and individual investors. This is different from most previous studies, which focus on the herding of institutional investors because they use a unique dataset or because of the difficulty of distinguishing individual investors from these datasets. By using a complete dataset that includes the investor's identity, the current study reports a significant herding behavior in both investor groups. The findings indicate that the herding of institutional investors is greater than that of individuals. This evidence, considered in relation to the overall study findings, confirms the argument of Zhou and Lai (2009)

that stocks with a higher probability of information trading display a higher level of herding. In addition, the findings show that institutional investors herd more on stocks with small capitalization and low turnover and that their trading reflects positive feedback, i.e., momentum strategies. By contrast, individual investors herd more on stocks with small size and high turnover and they buy (sell) herd on stocks with negative (positive) past returns.

The second contribution of this study is that it addresses the causes of herding by investigating the stock returns around herding periods. Interestingly, the intense buy portfolios of institutions earn positive abnormal returns of 0.823% on average (t -value = 6.18) during the 20 days after intense trading episodes. Moreover, the portfolio intense bought by institutional investors significantly outperforms that intense sold during the 20 days after intense trading episodes, and the results are more pronounced among small stocks. By contrast, intense individual buy portfolios significantly underperform intense sell portfolios by an average of 0.517% during the following 20 days, especially on small firms. In other words, institutional and individual investors both herd more on small firms, but the abnormal returns after their intense trading episodes are distinct. A number of researchers, such as Lakonishok et al. (1992), Sias (2004) and Shyu and Sun (2010), argue that it is harder for investors to obtain substantial information on small firms; thus, behavioral herding is more likely to affect small firms. However, the findings of this study indicate that their argument may be insufficient. Institutional investors herd more and earn more profits on small firms, while individual investors herd more but lose more on small-cap firms. The results provide evidence that the herding behavior of institutional and individual investors may be driven by different factors. Institutional investor herding speeds up the price-adjustment process, whereas individual investors tend to herd on emotions.

The third contribution of this study is that it explores the impact of herding on stock price under high market pressure. If herding derives from behavioral factors, it may be intensified in extreme market conditions. Chiang and Zheng (2010) find significant evidence of herding in the US and Latin America during the crisis period. Lao and Singh (2011) find more pronounced evidence of herding in China and India during large market movements. However, Shyu and Sun (2010) find no significant changes of institutional herding under market stress in the Taiwan stock market. To further explore the relation between market stress and herding, this study examines herding in two volatile periods: one is due to a high level of economic uncertainty while the other is due to the SARS outbreak. The results show that individual herding increased in the market under high pressure and that the underperformance of individual intense buying over intense selling is even more pronounced than that during the whole period. This finding reconfirms that the herding of individual investors is more likely to be behavior-driven. By contrast, institutional herding increased only on the buy side. Interestingly, the abnormal returns subsequent to institutional buy-side herding (BHM) in the volatile periods remain positive and are even higher than those during the whole period. When the market is under turbulence, institutional investors tend to crowd together to purchase certain stocks that are expected to experience significant positive returns afterwards. Portfolios with intense institutional buying at day t have abnormal returns of 1.065% on average (t -value = 4.82) during the 20 days after day t . The impact of institutional herding on returns is too long to say it is only caused by temporary buying pressure. This result could be better explained by the fact that institutional investors receive correlated private information (e.g., Hirshleifer et al., 1994). Or the result could be explained by the idea that institutional investors, who are more sophisticated, buy stocks with certain stock characteristics, such as high liquidity or high earnings, when facing high market risk (e.g., Falkenstein, 1996). These findings provide evidence that institutional herding is less likely to be behavior-driven.

The remainder of this paper is organized into six sections. Section 2 describes the market and study samples. Section 3 presents the

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