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Who is the more overconfident trader? Individual vs. institutional investors

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ABSTRACT

Guided by the Gervais and Odean (2001) overconfident trading hypothesis, we comprehensively investigate the trading behavior of individual vs. institutional investors in Taiwan in an attempt to identify who is the more overconfident trader. Conditional on the various states of the market, on market volatility, and on the risk level of the securities they trade, we find that both individual and institutional investors trade more aggressively following market gains in bull markets, in up-market states, in up-momentum market states, and in low-volatility market states and that only individual investors trade more in riskier securities following market gains. More importantly, we find that individual investors trade more aggressively following market gains in the three conditional states of the market and in high-volatility market states than institutional investors. Also, individual investors trade more in relatively riskier securities following gains than institutional investors. These findings provide evidence that individual investors are more overconfident traders than institutional investors.

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1. Introduction

It has long been argued that trading volume in financial markets is too large to be justified on rational grounds (see, for example, Ross, 1989a). Excess trading volume is one puzzle representing a great challenge to the field of finance. De Bondt and Thaler (1995) argue that overconfidence plays a key role in solving this puzzle. Along this line of thinking, there are a growing number of theoretical models rooted in investor overconfidence to account for the observed excess trading volume in financial markets. For example, the self-learning model proposed by Gervais and Odean (2001) predicts that biased investors overestimate the degree to which they contribute to returns from general market increases, the process of wealth accumulation makes them overconfident, and therefore they trade more aggressively following market gains.¹

Several empirical studies present evidence that overconfidence plays a pivotal role in explaining individual investors' propensity to trade too much and too speculatively. For example, Odean

(1999) and Barber and Odean (2000) find that US individual investors with discount brokerage accounts appear overconfident about their perceived information and ability to trade in that they trade too much and too speculatively, yet their active trading detracts from their performance.

Odean (1998, 1999) and Gervais and Odean (2001) argue that people who are more overconfident in their investment abilities may be more likely to seek jobs as traders or to actively trade on their own accounts. If so, we might expect to observe that financial markets are populated by overconfident investors. Many researchers also argue that overconfident investors can survive and dominate markets in the long run (e.g., Kyle and Wang, 1997; Benos, 1998; Daniel et al., 1998; Gervais and Odean, 2001; Hirshleifer and Luo, 2001; Wang, 2001). These arguments imply that it is possible to detect investors' aggregate overconfident trading behavior from the market level if overconfidence is a systematic cognitive bias from which most investors suffer.

Focusing on the aggregate overconfident trading behavior of US investors, Statman et al. (2006) and Chuang and Lee (2006) find that high market-wide returns are followed by high market-wide trading volume, and they interpret their finding as consistent with the theoretical prediction of the Gervais and Odean (2001) model that market gains make investors overconfident and consequently they trade more actively in subsequent periods.

Some psychologists present evidence that Asians exhibit overconfidence in general knowledge (e.g., Yates et al., 1996, 1997).

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¹ A similar argument that overconfidence leads to greater trading is also made in De Long et al. (1991), Kyle and Wang (1997), Benos (1998), Odean (1998), Wang (2001), Daniel et al. (2001), Hirshleifer and Luo (2001), Caballé and Sákovic (2003), and Scheinkman and Xiong (2003).

This makes Asian markets, such as Taiwan, very good platforms upon which to test the overconfidence hypothesis. Using a complete trading dataset of all Taiwanese investors, Barber et al. (2009) find that individual investors trade to their significant detriment, which can be traced to their aggressive trades. They argue that overconfidence and entertainment are two reasons that explain why individual investors trade so speculatively (see also Bauer et al., 2009). On the other hand, they find that institutional investors earn positive abnormal returns from both their passive and aggressive trades. Since individual investors may also trade for fun, it is still not altogether clear from Barber et al. (2009) whether individual investors are more overconfident traders than institutional investors.

In this paper, we also focus on the Taiwanese stock market to test Gervais and Odean's (2001) overconfident trading hypothesis. In particular, we examine the trading behavior of individual vs. institutional investors in Taiwan. For this purpose, we form size- and volume-institutional ownership portfolios that are different in terms of institutional ownership but similar in terms of firm size and trading volume, respectively, for stocks listed on the Taiwan Stock Exchange (TSE). First, in a preliminary analysis, we find a significant positive causal relation between current portfolio volume and lagged market returns for all portfolios. Then, we examine this positive causal relation across the low and high institutional ownership portfolios within each size and volume quartile by using a Seemingly Unrelated Regressions (SUR) model. Our results show that this positive causal relation is significantly stronger for the portfolios with low institutional ownership than for the portfolios with high institutional ownership. This implies that market gains make individual investors trade more aggressively in subsequent periods than institutional investors.

To gain more insight into the overconfident trading behavior of Taiwanese investors, we follow and extend Chuang and Lee (2006) to analyze how investors behave conditional on the various states of the market, on market volatility, and on the risk level of the securities they trade. All these conditional events are suggested by behavioral finance theory. Using this conditional framework, first, we find that both individual and institutional investors trade more actively subsequent to market gains in bull markets, in up-market states, and in up-momentum market states than in bear markets, in down-market states, and in down-momentum market states, respectively.² Second, we find that both individual and institutional investors trade more actively following market gains in low-volatility market states than in high-volatility market states and that individual investors trade more actively following market gains in high-volatility market states than institutional investors. And, finally, we find that only individual investors tend to underestimate risk and trade more in riskier securities subsequent to market gains. More importantly, we find that individual investors trade more actively following market gains in these conditional events than institutional investors, together with the finding that the trading performance of individual investors is worse than that of institutional investors, indicating that individual investors are more overconfident traders than institutional investors.

Finally, we relate our findings to the two strands in the literature that analyze the overconfidence of individual vs. institutional investors. On one side, Griffin and Tversky (1992) argue that when predictability is very low, professionals may be even more overconfident than novices and amateurs. On the other side, Gervais and Odean (2001) argue that less experienced traders will be more overconfident than more experienced traders. In general, individ-

ual investors as a group are regarded as less experienced, amateurish investors, while institutional investors as a group are regarded as more experienced, professional investors (see also Menkhoff, 2010). Overall, consistent with Gervais and Odean's (2001) argument, we find that individual investors are more overconfident traders than institutional investors.

This paper contributes to the overconfidence literature along three lines. First, our comprehensive empirical examination provides more evidence on the issue of whether individual investors are more overconfident traders than institutional investors. Although, as noted by Barber et al. (2009), individual investors may trade for fun, it is hard to argue that they do so particularly in bull markets, in up-market states, in up-momentum market states, and in low-volatility market states. Second, unlike prior studies that find either that investors trade more actively after market gains or that institutional investors enjoy better trading performance than individual investors, we find that individual investors trade more actively after market gains and their trading performance gets worse than institutional investors. Our results verify the notion that overconfidence implies non-optimal decisions by showing that individual investors' active trading after market gains reduces their performance. Third, we find that investors' overconfident trading varies in up- and down-market states, in up- and down-momentum market states, and in low-, medium-, and high-volatility market states. These issues are not explored in prior studies and our findings advance our understanding of investors' overconfident trading behavior.

The paper is organized as follows. Section 2 introduces the data, describes the method to filter trading volume series to achieve stationarity, and reports some descriptive statistics. Section 3 introduces our various empirical frameworks that are devised to detect the overconfident trading behavior of Taiwanese individual and institutional investors and to compare the relative degree of their overconfident trading behavior, and presents and discusses the empirical results. Finally, we conclude the paper in Section 4.

2. Background, data and detrending trading volume series

2.1. Taiwan market rules

Before proceeding, it is useful to characterize the Taiwan Stock Exchange (TSE). The TSE is an order-driven call market where only limit orders are accepted. Unlike US stock markets, there are no formal designated market makers or specialists. All securities listed on the TSE are traded through the Fully Automated Securities Trading (FAST) system. Orders are executed according to the rule of strict price and time priority. Therefore, an order entered into the FAST system at an earlier time should be fully executed before an order at the same price entered at a later time is executed.

Institutional investors in Taiwan are classified into five categories: corporate institutions, financial institutions, mutual funds, securities dealers, and foreign investors.³ Although the majority of participants in the TSE are individual investors, institutional investors have become gradually more active over time and, therefore, play an increasingly important role in the Taiwanese stock market. For example, at the start of our sample, domestic and foreign institutional investors accounted for 10% of total trading volume (NT\$ 822 billion);

² See our discussion in Section 3.3 for details about the definitions of these market states which are devised to capture the difference in investors' overconfident trading behavior.

³ In Taiwan, corporate institutions include Taiwanese corporations and government-owned firms. The mean averages of share ownership by Taiwanese corporations and government-owned firms from 1996 to 2007 were 21.74% and 5.43%, respectively. In addition to this, since government-owned firms tend to follow government policy to stabilize the market and might not pursue profit-maximizing objective to actively trade in the stock market, it is expected that Taiwanese corporations would contribute the most to corporate trading.

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