



The overconfident trading behavior of individual versus institutional investors



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ABSTRACT

A double-threshold GARCH model is employed to simultaneously investigate the relative degree of overconfident trading of individual versus institutional investors and the impact of their overconfident trading on stock return volatility across high and low market return regimes. The results show that both individual and institutional investors trade more overconfidently in high market return regimes than in low, which corresponds to the finding that the return volatility is also higher in high market return regimes compared to low regimes. Conditional on the market state, market volatility, and market liquidity, it is believed that both individual and institutional investors exhibit more pronounced overconfident trading behavior when the market is up, less volatile, and more liquid across market return regimes. Finally, we obtain consistent evidence that individual investors trade with more overconfidence than institutional investors in these market conditions during high market return regimes, indicating that individual investors are more overconfident traders than institutional investors.

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1. Introduction

Some theoretical works have been put forward to explain why investors trade intensively in financial markets based on irrational grounds.¹ For example, Gervais and Odean (2001) proposed a self-learning model predicting that investors might trade more aggressively following market gains in the hope of profiting more if they exaggerate their investment ability to contribute to the returns from general market increases. Indeed, as frequently displayed on financial news channels, investors often joyfully celebrate market increases, since investors in aggregate hold long positions in equity markets and profit from market run-ups. Overconfidence may unconsciously be nourished behind this self-applause, causing investors to trade more actively and speculatively after market gains in order to accumulate wealth rapidly. Put in this perspective, Gervais and Odean's (2001) model provided a testable implication of the overconfident trading hypothesis: high market returns are followed by high trading volume.

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¹ Zhou (2013) theoretically showed that the insider's overconfident beliefs can better explain the unusually high trading volume in the market than his underconfident or rational beliefs.

On the other hand, investor trading motivated by the disposition effect proposed by Shefrin and Statman (1985) also predicted a similar return-volume relationship. More precisely, the disposition trading hypothesis presumes that volume follows returns because investors are eager to lock in gains after an increase in the stock price and reluctant to trade after accruing poor returns. Statman, Thorley, and Vorkink (2006) argued that the disposition effect is referred to investors' attitudes toward specific stocks that investors themselves currently hold in their portfolios. In contrast, the overconfident trading hypothesis states that if investors overstate their ability to increase wealth by active trading, they are likely to maintain this belief about any stocks they can trade that are not restricted to specific stocks already in their portfolios. As such, one way to distinguish between overconfident and disposition trading is the fact that the trading volume of a stock due to overconfidence is related to prior returns on the market, while that due to disposition is associated with the prior returns on the stock.²

Using the above distinguishing approach, Statman et al. (2006) and Chuang and Susmel (2011) found that overconfidence induces the U.S. and Taiwanese investors to trade more actively than disposition, respectively. They also found that individual investors are more overconfident traders than institutional investors in both the U.S. and Taiwanese stock markets. Their results imply that investors in both developed and developing countries succumb to an overconfidence bias to excessive trading.

Theoretical work also predicts that the price volatility of a risky asset increases with investor overconfidence (Benos, 1998; Gervais and Odean, 2001; Odean, 1998; Scheinkman and Xiong, 2003). Chuang and Lee (2006) provided evidence that excessive trading of overconfident investors contributes to the observed excessive volatility in the U.S. stock market. Yet, to date, there has been little empirical evidence on this issue. As such, whether the other stock markets can uncover similar evidence is still a worth-while investigation. Moreover, intuition suggests that large market gains will make investors become more overconfident and consequently trade with more overconfidence than small market gains, suggesting that the degree of investors' overconfident trading may differ across the different ranges of market gains.

In this study, a double-threshold GARCH (DT-GARCH) model is employed to simultaneously examine the overconfident trading behavior of individual versus institutional investors and the impact of their overconfident trading on stock return volatility in the Taiwanese stock market.³ The main feature of the DT-GARCH model is that it permits multiple regimes in both the conditional mean and variance equations based on the threshold variable when analyzing the data. The DT-GARCH model has been extensively applied to empirical studies in finance and economics. For example, researchers have employed it to explore the issues such as time-series modelling of financial and economic data (e.g., So, Chen, Thomas, and Lin, 2007; Chen, So, and Lin, 2009), international integration of financial markets (e.g., Chen, Chiang, and So, 2003; Chen and So, 2006; Chen, Yang, Gerlach, and Lo, 2006), exchange rate movements (e.g., Yang and Chang, 2008; Hwang, Baek, Park, and Choi, 2010), and others. To the best of our knowledge, we are the first to apply the DT-GARCH model to explore the issues associated with behavioral finance.

One advantage of using the DT-GARCH model is that it estimates all parameters, including the threshold value of market gains, and the relation between overconfident trading and stock return volatility in a one-step procedure. In this regard, generated regressor problems resulting from the two-step estimation process can be avoided (see Pagan, 1984).⁴ Moreover, by specifying the threshold value of market gains, we can examine whether there is a difference in the degree of investors' overconfident trading above and below the threshold. In addition, the relative magnitude of the threshold across investor types also provides a way to compare the relative degree of overconfident trading of individual versus institutional investors. The low threshold means that small market gains are enough to inspire investors to trade with overconfidence. If, for example, both individual and institutional investors trade more overconfidently above the threshold than below it, the finding of a lower threshold for individual investors implies that they are more overconfident traders than institutional investors.

Several important results obtained in this study are as follows. First, we find that investors exhibit more significant overconfident trading behavior than disposition trading behavior, which is in line with the findings of Statman et al. (2006) and Chuang and Susmel (2011). Indeed, little evidence that investors' trading behavior can be explained by the disposition effect. Second, we discover that the threshold value of market returns is always statistically significant in all our empirical tests and that both individual and institutional investors trade more overconfidently above the threshold than below it. These findings also help justify our application of the DT-GARCH model for the investigation of investors' overconfident trading behavior.

Third, the results show that both types of investors trade more overconfidently in up, low-volatility, and high-liquidity market states in high market return regimes. The results also show that individual investors trade with more overconfidence when compared to institutional investors in these market conditions. These findings can be further reinforced by the fact that the threshold value of market returns used to differentiate the different degrees of overconfident trading behavior is smaller for individual investors than for institutional investors. Consistent with the findings of Chuang and Susmel (2011) and Chuang et al. (2014), these findings provide concrete evidence that individual investors are more overconfident traders than institutional investors.

Fourth, it is found that stock returns become more volatile when market returns are high than when they are low. Given the finding that investors also trade more overconfidently when market returns are high, the finding of higher stock return volatility in high market return regimes might be attributable to more active overconfident trading in the regime of high market returns.

² Griffin, Nardari, and Stulz (2007) and Chuang, Lee, and Wang (2014) also identify the positive causal relation between lagged market returns and current trading turnover as investors' overconfident trading behavior.

³ Chuang, Liu, and Susmel (2012) argue that from a theoretical and practical standpoint, stock returns, trading volume, and the volatilities of returns and volume are jointly and simultaneously determined by the same market dynamics, and are inextricably linked. This suggests that one should estimate the relations among these variables using the one-step procedure to avoid the misspecification problem. The framework of the double-threshold GARCH (DT-GARCH) model is consistent with the Chuang et al. argument.

⁴ Chen and So (2006) use a two-step procedure to estimate the relation between overconfident trading and stock return volatility, which might suffer from generated regressor problems.

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