North American Journal of Economics and Finance 35 (2016) 101–115

Contents lists available at ScienceDirect

North American Journal of Economics and Finance

Do foreign institutions outperform in the Taiwan options market?

William T. Lin[a,d,1], Shih-Chuan Tsai[b,*,1], Peter Chiu[a,c,1]

[a] *Department of Banking & Finance, Tamkang University, Taiwan*
[b] *Graduate Institute of Management, National Taiwan Normal University, Taiwan*
[c] *Taiwan Futures Exchange, Taiwan*
[d] *Academy of Financial Research, Zhejiang University, China*

ARTICLE INFO

Article history:
Available online 4 November 2015

JEL classification:
G10
G14
G15

Keywords:
Institutional investor
Limit order book
Option price
Order imbalance

ABSTRACT

This paper investigates comparative information advantage for foreign and domestic institutions on Taiwan's index options by examining the intraday information content of limit orders placed by foreign and domestic institutions, respectively. The height and length of limit order book provided by either foreign or domestic institutions exhibit predictive power on subsequent price changes in options, especially for put options. The information advantage is more significant for foreign institutions with respect to both call and put options. On the other hand, the results are mixed when order imbalance is used as the proxy of information on limit order book. Foreign institutions outperform domestic institutions for put options, not call options. Order imbalance, ignoring differential aggressiveness of limit orders, fails to capture comparative information advantage for foreign institutions. The superior information advantage for foreign institutions persists during the financial tsunami of 2008–2009 and periods of substantial price changes.

* Corresponding author at: Graduate Institute of Management, College of Management, National Taiwan Normal University, No. 162, Section 1, Heping East Rd., Taipei City 106, Taiwan. Tel.: +886 2 7734 3299.
E-mail addresses: yungshuncn@hotmail.com (W.T. Lin), chuant@ntnu.edu.tw (S.-C. Tsai), peterc@taifex.com.tw (P. Chiu).

[1] We would like to thank Z. Qiu and S. Qiao at Xiamen University for research assistance. Tsai would like to acknowledge the financial support from Ministry of Science and Technology, R.O.C. (grant # MOST-103-2410-H-003-036)

http://dx.doi.org/10.1016/j.najef.2015.10.005
1062-9408/

1. Introduction

Our paper examines whether the foreign institutional investors (hereafter FII) outperform domestic institutional investors (hereafter DII), in predicting the subsequent prices of options written on the Taiwan Stock Exchange Capitalization Weighted Stock Index (symbol as TXO). TXO are all traded electronically and order-driven, having a daily average of more than 390,000 contracts, i.e., 68% of the total daily trading volume on the Taiwan futures market during our sample period. Both FII and DII are found to be informed traders (Grinblatt & Keloharju, 2000; Kalev, Nguyen & Oh, 2008; Tsai, 2013), but FII are much market-wide-informed traders on emerging stock markets (Bae, Stulz, & Tan, 2008) rather than firm-specific-informed traders.[2] Therefore, we would like to study whether the FII outperform the DII by trading TXO, written on the iconic market-wide equity index on the Taiwan stock market.

Except for the high liquidity of TXO, we choose option markets based on three reasons: first, the payoff of the options is nonlinear with the underlying asset, thus trading in option markets call for more skills compared with the stock market; second, options provide an approach to trade volatility of the underlying in addition to direction information; third, both fundamental theories and empirical evidence show that the informed traders prefer to trade in the option markets due to leverage, unlimited short sales and lower transaction costs (Black, 1975; Pan & Poteshman, 2006). Therefore, option markets provide a better venue to compare the relative performance between FII and DII.

The existing literature has focused mainly on whether FII and DII are informed traders rather than on their price predicting ability. Lee, Lin, and Liu (1999) demonstrate that the large DII conduct the most informed trades using the Top 30 stocks listed on Taiwan Stock Exchange. Kalev et al. (2008) say that FII mainly advances in analyzing the market-wide information rather than public-firm specific information. They classify the Helsinki Stock Exchange stocks into three groups: the single-listed, cross-listed and internationally well-known stocks. The return on internationally well-known stocks appears to be the least information asymmetric among different types of investors. Their empirical results show that the local investors (including DII) perform better for the stocks in the first two groups, while in the long run foreign investors seem to have a better performance the internationally listed stocks such as Nokia. With respect to their trading behavior around earnings announcement, the results of Seasholes (2000) also support the superior performance by the foreign investors.

With respect to the option markets, Chang, Hsieh, and Lai (2009) use the put-call ratio to predict the return and find that FII have better predictive power. Chang, Hsieh, and Wang (2010) subsequently follow the method of Ni et al. (2008) and show that FII possess the strongest and the most direct volatility information.

The related papers mainly concentrate on the relationship between the information flow of institutional investors and the subsequent stock returns (Bae et al., 2008; Froot, O'Connell, and Seasholes, 2001; Grinblatt and Keloharju, 2000; Kalev et al., 2008). Chang et al. (2009, 2010) extend to examine the order flows placed by FII and DII and on the Taiwan option market. Cont, Kukanov, and Stoikov (2014) show that order books contain more information than trade books do as in Engle and Lunde (2003) in term of price movement predictability. Chou and Wang (2009) further utilize the orders submitted by investors on the Taiwan futures market and show FII and proprietary firms are more likely to be informed and often place orders with strategy.

Our option data set consists of intraday order and trade data. We follow the methods of Cao, Hansch, and Wang (2009) to restructure five best quote bid and ask prices and their corresponding positions on the limit order book (hereafter LOB) of TXO for all types of investors. With the description statistics and the empirical results of the autoregression tests shown on Section 4, the optimal time interval is chosen to be 5 s. Stepwise height, length and order imbalance variables are used to predict the changes in TXO prices. The height is defined as the price difference between adjacent steps prices of LOB on the same long (or short) quote side, the length as the quote position on every step, thus generating ten

[2] Prior studies such as Lee et al. (1999) and Tsai (2014) show that certain retail investors are better informed in the Taiwan stock market. Chen et al., (2014) also document a positive relationship between aggregate retail investors' trading and subsequent abnormal stock returns for dividend announcements in Taiwan.