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期权市场投资者下单行为:

特征、信息含量及影响因素

**Order Submission Behavior of Investors in Option  
Markets: Features, Information Content and  
Affecting Factors**

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## 摘要

投资者的下单选择是委托单驱动市场交易运行的基础,也是投资者交易策略的核心。目前,关于投资者下单行为的研究主要有两点局限性。一是研究集中于国外股票市场,尚未涉及衍生品市场。二是从全市场的角度研究投资者下单行为,而未区分投资者。本文运用台湾股指期货市场详细的委托单数据,围绕台湾股指期货市场境内机构投资者、境外机构投资者、个人投资者以及做市商的下单行为特征、信息含量以及影响因素展开深入研究,得到本文的主要结论如下:

(1) 本文实证分析四类投资者下单行为的特征,发现台湾股指期货市场中的所有投资者虽然偏好采用短期的平价期权和浅价外期权,以追求高流动性、高杠杆率以及高波动率敏感性,但他们仍是相对理性且有耐心的,他们更倾向于提交小额买单(卖单)、优势买单(卖单)和报价买单(卖单),撤销劣势买卖(卖单)、报价买单(卖单)和优势买单(卖单),对于太过积极的委托单和太过消极的委托单都没有太大兴趣。

四类投资者的下单行为具有显著的日内效应。其中,境内机构投资者、个人投资者和做市商提交/取消的委托单在开盘和收盘时较为集中,且具有不对称性;境外机构投资者的下单频率从开盘后不断增加,直至收盘时达到最大。这体现了开盘时隔夜信息的累积以及收盘时投资者平仓需求和信息需求的累积。进一步分析四类投资者的委托单日内变化,发现境内机构投资者、个人投资者和做市商偏好选择小额买单(卖单)、优势买单(卖单)和报价买单(卖单)进行信息交易,而境外机构投资者则倾向于通过完全买单(卖单)和小额买单(卖单)完成套利交易。

四类投资者提交和取消的 14 类委托单均具有显著的对角线效应,在买卖方向上也具有对称性,且这种对角线效应是由投资者群聚效应和拆单策略引起的。

(2) 通过构建多维度的方向信息指标和波动率信息指标,我们检验了台湾股指期货市场中的投资者委托下单行为所隐含的方向信息和波动率信息,同

时探讨不同类型投资者下单行为隐含的信息差异。首先，从全市场看，投资者提交和取消的委托单中均存在显著的方向预测信息，且提交的委托单预测能力更强。从四类投资者的角度看，境内机构投资者、个人投资者和做市商是方向信息投机者，而境外机构投资者是套利交易者。在三类投机交易者中，境内机构投资者是失败的投机者，他们在交易中更多地选择高杠杆率的深价外期权，且提交更多的积极委托单，下单较为激进；做市商在交易中则是选择杠杆率较低的浅价外期权，且提交更多的不积极的委托单，下单较为谨慎；与前两类投机交易者不同，个人投资者则是积极地追求高流动性和高价格敏感性，因而更多地选择深价内期权，并提交积极委托单。对于套利者来说，境外机构投资者追求高价格敏感性、高流动性的价内期权和平价期权，他们在交易中为迅速实现套利获益而更多地选择积极委托单。

其次，我们检验投资者是否包含波动率预测信息。从全市场看，投资者提交的委托单中隐含着波动率预测信息，而取消的委托单中不包含。从四类投资者的角度看，境内机构投资者和境外机构投资者的下单行为包含波动率预测信息，而个人投资者和做市商的下单行为不具备。另外，所有投资者取消的委托单中都不具有波动率预测信息。两类波动率信息投资者偏好提交不积极的平价期权进行波动率交易。

(3) 运用次序 Probit 模型分析投资者下单行为的影响因素。我们发现，上一笔委托单类型、买卖价差、波动率、报价中点正向变动百分比对四类投资者的下单行为均具有显著的影响，且上述影响因子对不同投资者在不同的买卖方向上的提交行为和撤单行为具有不同的影响。如当波动率增大时，境内机构投资者和境外机构投资者倾向于提交积极程度更高的委托单，撤销积极程度较低的委托单；做市商虽然更倾向于提交积极程度更高的委托单，但撤销积极程度较高的买单和积极程度较低的卖单；而个人投资者倾向于撤销积极程度较高的委托单，并转而提交积极程度较低的委托单。因而，投资者在选择不同的下单策略时应关注不同的影响因子。

**关键词：** 下单行为； 对角线效应； 方向信息； 波动率信息； 次序 Probit 模型

## Abstract

Order submission by investors is the foundation of the order-driven market, and the heart of investors' trading strategies. So far, there are two main limitations of the research on order submission behavior of investors. One is that the research has focused on overseas stock markets, not on derivatives markets. The other one is that all studies are based on the whole market, not on the differences between investors. This paper uses detailed order data in TAIEX option market to investigate order submission behavior of domestic institutional investors, foreign institutional investors, individual investors and market-makers, and then examine various information content and affecting factors implied by investors' submission behavior.

(1) In this paper, we empirically analyze the characteristics of the four types of investors. First, we find that although all investors prefer short-term at-the-money options and out-the-money options in pursuit of high liquidity, high leverage and high volatility sensitivity, they are still rational and patient, because they are more inclined to submit small orders (buy or sell), superior orders (buy or sell) and quoted orders (buy or sell), cancel inferior orders (buy or sell), quoted orders (buy or sell) and superior orders (buy or sell), and not interested in orders that are too aggressive or passive.

Second, submission behavior by four types of investors exhibits significant intraday patterns. Orders submitted/cancelled by domestic institutional investors, individual investors and market makers are most frequent asymmetrically during early morning and late afternoon; orders frequency by foreign institutional investors increases since opening, and become bigger until closing. This reflects the accumulation effect of overnight information at opening time and the needs of investors liquidated demand and informed trading at closing time. We further examine changes of order in whole days, and find domestic institutional investors, individual investors and market makers are more likely to trade through small orders, superior orders and quote orders, while foreign institutional investors tend to arbitrage with total orders and small orders.

Finally, orders submitted/cancelled by four types of investor exhibits significant diagonal effect, which is symmetry in directions. And the diagonal effect

is caused by herding effect and order splitting strategies.

(2) By constructing the directional information index and volatility information index from multi-dimensional, we test directional information and volatility information in orders submitted/cancelled by different investors, and explore the difference among investors. First, all the orders submitted/cancelled contain significant prediction ability about future returns, and the orders submitted show stronger prediction ability than orders cancelled. Moreover, we find that domestic institutional investors, individuals and market makers are informed speculators, and foreign institutional investors are arbitrageurs. Among the speculators, domestic institutional investors are losers, who are more likely to submit aggressive deep out-the-money options in seek of high leverage; market makers tend to submit passive out-the-money options in directional informed trading, while individuals prefer aggressive deep in-the-money options. For arbitrageurs, foreign institutional investors prefer to submit aggressive in-the-money options and at-the-money options in pursuit of high sensitivity and high liquidity.

Second, we test whether investors contain volatility information. In the whole market, orders submitted have strong prediction ability about future TAIEX volatility, but orders cancelled don't. Moreover, order behavior of domestic institutional investors and foreign institutional investors contains volatility prediction information while individual investors and market maker does not. Orders cancelled by all investors don't have volatility prediction ability. The informed investors with volatility information prefer to submit passive at-the-money options.

(3) We analyze the factors that influence order submission of investors by ordered probit model. We find that four of eleven factors have a significant effect on order submission, which is the type of last orders, bid-ask spread, volatility, percentage of positive changes of midpoint. Moreover, the factors have different influence on order submission/cancellation behavior of different investors. For example, the bigger volatility is, the more aggressive orders submitted by domestic institutional investors, foreign institutional investors and market makers are, the less aggressive orders cancelled by them are; while the less aggressive orders submitted by individual investors are, and the more aggressive orders cancelled by



them are. Therefore, different order strategies by different investors depend on different factors.

**Keywords:** Order submission; Diagonal effect; Directional information; Volatility information; Ordered Probit model

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