II. Market Structure and Market-Making Rules

A. Market Structure of TAIEX Options Market

The market making structure of Taiwan is more or less similar to that of CBOE. First, it operates as a competitive dealer market with multiple market makers. Second, the market makers on Taiwan’s the option market do not observe the order book. It implies that the dealers’ inventory control and market power have less effect on the intraday variation of spreads in TAIEX options. Third, it operates with electronic continuous trading during daily trading hours and the order is matched automatically once it enters the Electronic Trading System (ETS). Price discovery occurs gradually on the market. The priority for order matching shall be determined based upon the following principles First, market orders have priority over limit orders and the quotation to which market maker respond to the price quotation requests. The sorting of the quotation which market maker respond to the price quotation requests is the same with limit order in the order book. Second, higher-priced buy orders have the execution precedence over lower-priced buy orders and lower-priced sell orders have the execution precedence over higher-priced sell orders. Third, if there are any market orders and equal-price limit orders placed before the opening of the market, execution precedence will be selected randomly by computer. Any orders placed after the opening of the market, the chronological sequence method will be employed to determine execution precedence. Fourth, Combination order is defined as simultaneous trading of different contracts. The combination order shall be reached a deal only if all the contracts are executed simultaneously.

Order matching method shall be separated into call market method and continuous market method.

i. The TAIEX option market opens with electronic call auctions and operates via electronic continuous auctions throughout the rest of the trading hours. In other
words, TAIEX begins to receive orders at 8:30 a.m. and determines opening price at 8:45 a.m. by satisfying the rule of maximum of transaction volumes. Except for the opening with call auctions, all orders are matched by chronological sequence in which the orders were placed. Namely, each new order or quotation entered into the system is immediately matched with the price and volume in the order book. Table 2 summarizes the structure of two order matching methods in TAIEX options.

ii. Combination order is not entered into the Electronic Trading System (ETS) prior to the opening, but after the opening, the ETS start to receive combination order.

iii. The orders with the best bid/offer price will be given the higher priority. If the price is the same, then the execution is given to the earliest order entered into the Electronic Trading System (ETS).

B. Operational Rule of Market Making

Market makers will follow the quotation method, quotation time limit, quotation size, and spread limits prescribed by the TAIEX to execute two-way quotes in relation to their market making contracts during daily trading hours. The quotes the market maker provided are constrained as follows:

i. The market makers respond to the request for price quotation within 60 seconds with respect to their market making contracts.

ii. Each price quotation the market makers respond should maintain for 20 seconds in the market.

iii. Each price quotation is for a trade size of at least 10 contracts.

iv. The spreads between bid and ask prices are no wider than the limits. As shown in Table 3, we observe the near-maturity contracts with higher bid price are constraint by wider spreads. Moreover, the maximum spreads are
higher in long-maturity contracts than near-maturity contracts.

According to Neal (1987), the empirical results display that bid-ask spreads depend on option prices because CBOE tick-size rule lead on a positive relationship between bid-ask spreads and option prices.

v. The monthly ratios of response to price quotation requests should reach above 70 percent.

vi. The monthly market making volume should reach above ten-thousand contracts.

When monthly price quotation ratio\(^1\) and monthly market making volume made by a market maker meet the requirement of TAIEX, market maker will be eligible to a discount of the monthly exchange fees and clearing service fees as announced by the TAIEX. Table 4 summarizes the discount rate market makers would obtain under different market-making volume. In Table 4, we observe that the market maker of the TAIEX option contract with higher market making volume would receive higher discount rate. In addition, the Taiwan Futures Exchange (TAIEX) was found in 1998. The TAIEX option was debuted on December 24, 2001. The introduction of the index option will broaden the financial product scope and offer more hedging vehicles for investors. Table 5 summarizes the debut of derivatives of futures on index and interest rate, and options on index and equity. Table 6 contains the specification for the TAIEX option. TAIEX option is European style option with multiplier NT$ 50 per index point. Daily price limit is +/- 7% of previous day’s closing price of the underlying index. In this section we provide description of details structure of the TAIEX option market, the regulation of market making and the specification of the TAIEX option. In the next section, we will present the empirical results and discuss their implications.

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\(^1\) Price quotation ratio is defined as the number of responding to the quotation request divided by the total number of the price quotation request.