Futures Market Dynamic Price Banding Mechanism QA

Q1. What are the applicable products of Dynamic Price Banding Mechanism?

A1.

Item	Products
Domestic Equity Index Futures	TAIEX Futures, Mini-TAIEX Futures, Mini-TAIEX Flexible Futures, Electronics Sector Index Futures, Mini Electronics Sector Futures, Finance Sector Index Futures, Mini Finance Sector Index Futures, Non- Finance Non- Electronics Sub-Index Futures, Taipei Exchange Stock Index Futures, TPEx 200 Futures, F4G TIP TW ESG Futures , TIP Taiwan Bio Futures, Semiconductor 30 Futures, Shipping and Transportation Sector Futures
Foreign Equity Index Futures	TOPIX Futures, DJIA Futures, S&P 500 Futures, Nasdaq-100 Futures, FTSE® 100 Index Futures and PHLX Semiconductor Sector Futures
ETF Futures	Please refer to the website.
FX Futures	USD/CNT FX Futures, USD/CNH FX Futures, EUR/USD FX Futures, USD/JPY FX Futures, GBP/USD FX Futures , AUD/USD FX Futures
Single Stock Futures	Please refer to the website.
Commodity Futures	Gold Futures, NT Dollar Gold Futures, Brent Crude Oil Futures
Domestic Equity Index Options	TAIEX Options, Electronics Sector Index Options, Finance Sector Index Options
ETF Options	Please refer to the website.
Single Stock Options	Please refer to the website.
Commodity Options	Gold Options

Q2. How does Dynamic Price Banding Mechanism work?

A2.

1. TAIFEX will check each new order (including limit orders, market orders and market with protection orders) and simulate a matched price based on the order book at the time. TAIFEX will reject buy (sell) orders with a simulated matched price above (below) the upper (lower) limit of TAIFEX' dynamic price band.
   - ✓ Buy Orders: simulated matched price > the upper limit of dynamic price band → reject order
   - ✓ Sell Orders: simulated matched price < the lower limit of dynamic price band → reject order
2. Only new orders that may cause abnormal price movements will be rejected. Price modifications are treated as new orders and are subject to dynamic price banding.
3. Implied orders constructed by TAIFEX' trading system are not actual orders and therefore not subject to dynamic price banding.
4. Upon receiving a combination order of Options, each component (leg) of the combination order will be checked. If any simulate matched price of the components (legs) exceed its price band, the combination order will be rejected.

Q3. How does TAIFEX calculate the upper limits and lower limits of dynamic price band?

A3.

1. Equity Index Futures, ETF Futures, Single Stock Futures, Commodity Futures, Index Options, ETF Options, Single Stock Options and Gold Options

✓ Upper limit of price band: base price＋variation range

✓ Lower limit of price band: base price－variation range

2. FX Futures

✓ Upper limit of price band: base ask price＋variation range

✓ Lower limit of price band: base bid price－variation range

Q4. How does TAIFEX calculate the Variation Range of Futures products?

A4.

- ✓ Domestic Equity Index Futures
  - ➢ TAIEX Futures and Mini-TAIEX Futures
    - ■ Spot Month Contract and Next Calendar Month Contract = the most recent closing price of underlying index × outright rejection threshold (1%)
    - ■ Weekly Contract, Third Calendar Month Contract and Next Three Quarterly Months Contracts = the most recent closing price of underlying index × outright rejection threshold (2%)
    - ■ Calendar Spread = the most recent closing price of underlying index × spread rejection threshold (1%)
  - ➢ Mini-TAIEX Flexible Futures
    - ■ Outright Contracts = the most recent closing price of underlying index × outright rejection threshold (2%)
  - ➢ Electronics Sector Index Futures, Mini Electronics Sector Futures, Finance Sector Index Futures, Mini Finance Sector Index Futures, Non-Finance Non-Electronic Sub-Index Futures, Taipei Exchange Stock Index Futures, TPEx 200 Futures and F4G TIP TW ESG Futures.
    - ■ Outright Contracts = the most recent closing price of underlying index × outright rejection threshold (2%)
    - ■ Calendar Spread = the most recent closing price of underlying index × spread rejection threshold (1%)
  - ➢ TIP Taiwan Bio Futures, Semiconductor 30 Futures, Shipping and Transportation Sector Futures
    - ■ Outright Contracts = the most recent closing price of underlying index × outright rejection threshold (3%)
    - ■ Calendar Spread = the most recent closing price of underlying index × spread rejection threshold (1.5%)
- ✓ Foreign Equity Index Futures and FX Futures
  - ➢ TOPIX Futures, DJIA Futures, S&P 500 Futures, Nasdaq-100 Futures and FTSE® 100 Index Futures, USD/CNT FX Futures,

USD/CNH FX Futures, EUR/USD FX Futures, USD/JPY FX Futures, GBP/USD FX Futures, AUD/USD FX Futures.

- Outright Contracts = the most recent daily settlement price of the nearest month futures contract × outright rejection threshold (2%)
- Calendar Spread = the most recent daily settlement price of the nearest month futures contract × rejection threshold (1%)

➢ PHLX Semiconductor Sector Futures

- Outright Contracts = the most recent daily settlement price of the nearest month futures contract × outright rejection threshold (3%)
- Calendar Spread = the most recent daily settlement price of the nearest month futures contract × rejection threshold (1.5%)

✓ ETF Futures

➢ Yuanta/P-shares Taiwan Top 50 ETF Futures, Yuanta/P-shares Taiwan Dividend Plus ETF Futures , Cathay MSCI Taiwan ESG Sustainability High Dividend Yield ETF Futures, Capital TIP Customized Taiwan ESG Low Carbon 50 ETF Futures

- Outright Contracts and Calendar Spread = Referred Opening Price of the nearest month contract of the ETF futures × rejection threshold(2%)

➢ Fubon SSE180 ETF Futures, Yuanta/P-shares SSE50 ETF Futures, Cathay FTSE China A50 ETF Futures, Fubon SZSE 100 Index ETF Futures, Capital SZSE SME Price Index ETF Futures, Fubon Vietnam ETF Futures, Yuanta U.S. Treasury 20+ Year Bond ETF Futures

- Outright Contracts and Calendar Spread = Referred Opening Price of the nearest month contract of the ETF futures × rejection threshold(3.5%)

✓ Single Stock Futures

➢ Before the underlying security opening

- Outright Contracts and Calendar Spread = Referred Opening Price of the nearest month contract of the single stock futures × rejection threshold (7%)

➢ After the underlying security opening and after-hours session

- Outright Contracts and Calendar Spread = Referred Opening Price of the nearest month contract of the single stock futures × rejection threshold (3.5%)

✓ Commodity Futures

➢ Gold Futures, NT Dollar Gold Futures

- Outright Contracts and Calendar Spread = the most recent daily settlement price of the nearest month futures contract × rejection threshold (2%)

➢ Brent Crude Oil Futures

- Outright Contracts and Calendar Spread = the most recent daily settlement price of the nearest month futures contract × rejection threshold (3%)

Q5. How does TAIFEX calculate the Variation Range of Options?

A5.

✓ Index Options(TAIEX Options, Electronics Sector Index Options, Finance Sector Index Options)

➢ For Weekly Contracts and the Front month contract: variation range is determined based on Delta value:

- Prior to the latest volatility parameter of the trading session is available: variation range equals the most recent closing price of underlying index × rejection threshold (2%)
- After the latest volatility parameter of the trading session is available: variation range equals the most recent closing price of underlying index × rejection threshold (2%) × Delta × 2
  - When the absolute value of Delta is less than 0.25, Delta value will be replaced with 0.25.
  - When the absolute value of Delta is greater than 0.5, Delta value will be replaced with 0.5.

- For other expiration months: variation range equals the most recent closing price of underlying index × rejection threshold (2%)

✓ TAIFEX Options variation range calculation example

Assuming that the last closing price of the TAIEX index is 10,000 points, the variation range of TXO for the following regular trading session are calculated as follow：

- For the weekly contracts and the front month contract
  - Prior to the latest volatility parameter of the trading session is available: variation range = 10,000 × 2% = 200 points
  - After the latest volatility parameter of the trading session is available:
    - When the absolute value of Delta = 0.1 (less than 0.25), variation range = 10,000 × 2% × 0.25 × 2 = 100 points
    - When the absolute value of Delta = 0.3, variation range = 10,000 × 2% × 0.3 × 2 = 120 points
    - When the absolute value of Delta = 0.5, variation range = 10,000 × 2% × 0.5 × 2 = 200 points
    - If the absolute value of Delta = 0.7 (greater than 0.5), variation range = 10,000 × 2% × 0.5 × 2 = 200 points
- For other expiration months
  - Variation range = 10,000 × 2% = 200 points

✓ ETF Options

- Yuanta/P-shares Taiwan Top 50 ETF Options
  - Variation Range = Referred Opening Price of the nearest month contract of the ETF futures × rejection threshold (2%)
- Fubon SSE180 ETF Options, Yuanta/P-shares SSE50 ETF Options, Cathay FTSE China A50 ETF Options, Fubon SZSE 100 Index ETF Options, Capital SZSE SME Price Index ETF Options
  - Variation Range = Referred Opening Price of the nearest month contract of the ETF futures × rejection threshold

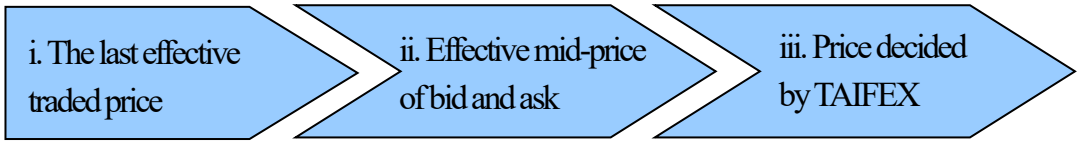
(3.5%)

- ✓ Single Stock Options
  - ■ Variation Range = Referred Opening Price of the nearest month contract of the single stock futures × rejection threshold (3.5%)
- ✓ Commodity Options
  - ■ Variation Range = The most recent daily settlement price of the nearest month of the NT Dollar Gold futures × rejection threshold (2%)

Q6. How does TAIFEX calculate the Base Price of Equity Index Futures, ETF Futures, Single Stock Futures and Commodity Futures?

A6.

Base price determination sequence:



i. The last effective traded price: In principal, base price is the last traded price prior to the time at which the base price is determined. The last traded price has to fulfill the criteria of the effective traded price.
   - ✓ The time lag between the effective traded price and the base price must be within a predetermined number of seconds.
   - ✓ The last traded price must be within a predetermined range from the effective mid-price of bid and ask.
   - ✓ The difference between the effective traded price and the price of relevant foreign or domestic product must be lower than a predetermined threshold set by TAIFEX.

ii. Effective mid-price of bid and ask: If the last effective traded price isn't available, base price is effective mid-price of bid and ask.
   - ✓ The effective mid-price is a volume-weighted average price of a

series of bid and ask prices starting from the best ones.

- ✓ The accumulated bid/ask volume used in calculating the effective mid-price should reach a predetermined threshold set by TAIFEX.
- ✓ (The volume-weighted average ask price ÷ The volume-weighted average bid price) <= a predetermined ratio.
- ✓ The difference between the effective mid-price and the price of relevant foreign or domestic product must be lower than a predetermined threshold set by TAIFEX.

iii. Price decided by TAIFEX: When neither i nor ii is available, TAIFEX will determine the base price by referring to the underlying index price, the impact of index-component dividends, and relevant global and domestic product prices.

Q7. How does TAIFEX calculate the Base Price of Options?

A7.

Base price is calculated using options pricing model with the following parameters:

- ✓ Underlying Price
- ✓ Volatility
- ✓ Interest Rate
- ✓ Strike Price
- ✓ Time to expiration

Q8. How does TAIFEX calculate the Base Bid Price and Base Ask Price of FX Futures?

A8.

- ✓ Outright Contracts: Base bid and ask price determination sequence

1. Effective bid and ask price:
   - ◆ The effective bid and ask is volume-weighted average price of a series of bid and ask prices starting from the best ones.
   - ◆ The accumulated bid/ask volume and spread used in calculating the effective bid and ask price should reach a predetermined threshold set by TAIFEX.
2. Price decided by TAIFEX: TAIFEX will determine the base bid and ask price by referring to the underlying foreign currency products prices

✓ Calendar Spread:

- ■ Base bid price = Longer-dated FX futures contract base bid price – Shorter-dated FX futures base sell price.
- ■ Base sell price = Longer-dated FX futures contract base ask price – Shorter-dated FX futures base bid price.

Q9. What is the applicable trading sessions of Dynamic Price Banding Mechanism?

A9.

Dynamic Price Banding is applicable to Continuous matching, not applicable to Call auction (Including opening call auction and the call auction of resumption of trading). Please refer to products specification for trading hours.

Q10. What are the treatments of Dynamic Price Banding Mechanism with different order types?

A10.

✓ Rest of Session (ROD) or Immediate or Cancel (IOC): Any portion of the order of which the simulated matched price is above (below) the upper (lower) limit of TAIFEX' dynamic price band will be rejected, while the remainder of the order with simulated matched prices within the dynamic price band will be executed.

- ✓ Fill or Kill (FOK): If any of the simulated matched prices are above (below) the upper (lower) limit of TAIFEX' dynamic price band, the whole order will be rejected.
- ✓ Example: an investor submits a limit order to buy 5 lots of the TX spot month contract. The simulated matched prices of 4 lots are within the dynamic price band, while the simulated match price of 1 lot exceeds the upper limit.
  - ◆ If the limit order is an ROD or IOC order: 4 lots will be executed, while 1 lot will be rejected.
  - ◆ If the limit order is an FOK order: the whole order (5 lots) will be rejected.

Q11.What situation will TAIFEX suspend Dynamic Price Band Mechanism for Single Stock Futures?

A11.

- ✓ Considering that underlying securities will stop trading or suspend trading for a period due to capital reduction, mergers, disposition and major information to announce, prices usually obviously fluctuate on the resumption date. Therefore, on the trading resumption date, dynamic price banding mechanism is not applicable to Single Stock Futures in the regular trading session until the underlying security opening.
- ✓ Considering that underlying securities encounter a significantly positive or negative event, there is a volatile change of a price on several days. If the closing price of the underlying security hits the limit up or limit down on the previous day, dynamic price banding mechanism will not be applicable to Single Stock Futures in the regular trading session until the underlying securities opening.
- ✓ In order to reduce system risk, dynamic price banding mechanism for all Single Stock Futures will be suspended in the regular trading session until the stock market opening if the pre-market quantitative suspension standard is reached.

Q12. Will TAIFEX adjust the variation range or suspend Dynamic Price Band Mechanism when special situations happen?

A12.

Yes, TAIFEX will adjust the variation range or suspend Dynamic Price Band Mechanism when the below Quantitative standards or Non-Quantitative standards met:

- ✓ Non-Quantitative standards
  - ➢ In the event of a natural disaster, riot, war or other force majeure events that may affect the trading at TAIFEX, TAIFEX may announce adjustments to the variation range or the suspension of dynamic price banding.
  - ➢ For other circumstances deem necessary, TAIFEX may announce adjustments to the variation range.
  - ➢ For circumstances that may affect the normal operation of dynamic price banding, TAIFEX may announce the suspension of dynamic price banding.
- ✓ Quantitative standards
  - ➢ When the trading volatility index reaching the limit set at TAIFEX' discretion, TAIFEX may announce adjustments to the variation range.
  - ➢ When domestic or foreign futures market or spot market raise more than a certain ratio set by TAIFEX, TAIFEX may double the variation range of Call Options upper limit and Put Options lower limit.
  - ➢ When domestic or foreign futures market or spot market decline more than a certain ratio set by TAIFEX, TAIFEX may double the variation range of Call Options lower limit and Put Options upper limit.

Q13. What should the participants pay attention to after TAIFEX launched Dynamic Price Banding Mechanism?

A13.
After TAIFEX launches Dynamic Price Banding Mechanism, TAIFEX will reject buy orders with simulated matched price above the upper limit of price band or sell orders with simulated matched price below the lower limit of price band. Pleased be notified that the participants have to manage the orders of themselves.

Q14. If a participant's order is rejected due to Dynamic Price Banding Mechanism, what messages will TAIFEX transfer to the participant?
A14.
If a participant's order is rejected due to Dynamic Price Banding Mechanism, TAIFEX will transfer the reason and quantity of rejected order and the upper (or lower) limit of price band to the participant.

Q15. When FCMs liquidate its client's position, are the orders applicable to Dynamic Price Banding Mechanism?
A15.
Yes, the orders are applicable to Dynamic Price Banding Mechanism when FCMs liquidate its client's position.

Q16. Is Block Trade applicable to Dynamic Price Banding Mechanism?
A16.
No, Block Trade isn't applicable to Dynamic Price Banding Mechanism.

Q17. After TAIFEX launches Dynamic Price Banding Mechanism, can market participants always place market orders or limit orders with daily highest or lowest price limit, without paying attention to the reasonableness of order price and market liquidity?
A17.
The Dynamic Price Banding Mechanism can only provide price stability within a certain range. Market participants shall still pay attention to the reasonableness of various order types and order prices when trading. In addition, the operation of Dynamic Price Banding Mechanism may differ as the variation range (or price band) may be expanded due to special

market condition, or the mechanism may be suspended due to malfunction. Market participants shall pay close attention to the reasonableness of order price and market liquidity. Market participants shall not rely solely on the mechanism.

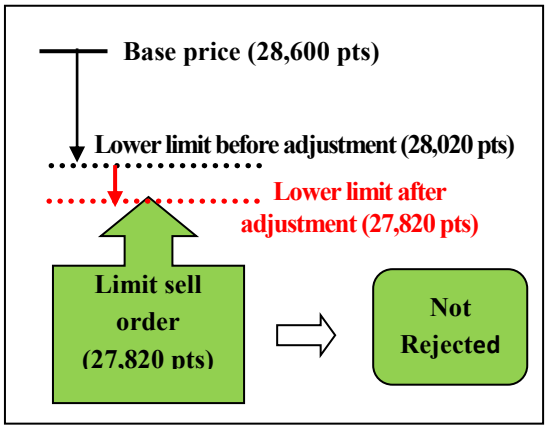
Q18. In some circumstances, the base price of foreign equity index futures, FX futures and Commodity futures may exceed the price limit because the price limit of foreign equity index futures, FX futures and Commodity futures are 3-level limits. If the lower limit of variation range is above the price of limit up or the upper limit of variation range is below the price of limit down, will TAIFEX adjust upper limit and lower limit of variation range? If yes, how TAIFEX adjust the upper limit and lower limit?

A18.

For foreign equity index futures, FX futures and Commodity futures, it may happen that the base prices exceed the price limits during the 10 minutes cooling-off period. If the lower limit of variation range is above the price of limit up, TAIFEX will adjust the value of lower limit to the price of limit up. If the upper limit of variation range is below the price of limit down, TAIFEX will adjust the value of upper limit to the price of limit down.

Example 1:

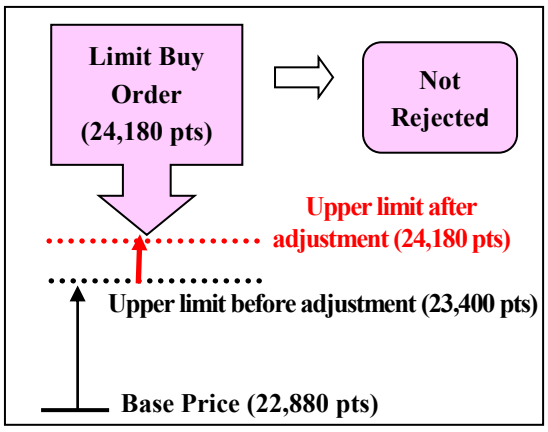
- ✓ Assuming that the opening reference price of the nearest quarterly month contract of TAIFEX DJIA Futures is 26,000 pts and the price of limit up (1st level +7%) is 27,820 pts.
- ✓ IF the matched price of the nearest quarterly month contract of CME E-mini DJIA Futures is 28,600 pts. The base price of the nearest quarterly month contract of TAIFEX DJIA Futures is 28,600 pts and the lower limit of variation range is 28,080 pts (=28,600－(26,000×2%)).
- ✓ Because the lower limit of variation range is above the price of limit up, TAIFEX will adjust the value of lower limit to the price of limit up.
- ✓ If an investor submits a limit order to sell 1 lot of DJIA Futures at 27,820 pts, the order will not be rejected.



Bid	Price	Ask
	27820	1
10	27819	
15	27818	
10	27817	
20	27816	
10	27815	

Example 2:

- ✓ Assuming that the opening reference price of the nearest quarterly month contract of TAIFEX DJIA Futures is 26,000 pts and the price of limit down (1st level -7%) is 24,180 pts.
- ✓ IF the matched price of the nearest quarterly month contract of CME E-mini DJIA Futures is 22,880 pts. The base price of the nearest quarterly month contract of TAIFEX DJIA Futures is 22,880 pts and the upper limit of variation range is 23,400 pts (=22,880+(26,000×2%)).
- ✓ Because the upper limit of variation range is below the price of limit down, TAIFEX will adjust the value of upper limit to the price of limit down.
- ✓ If an investor submits a limit order to buy 1 lot of DJIA Futures at 24,180 pts, the order will not be rejected.



Bid	Price	Ask
	24185	19
	24184	17
	24183	20
	24182	15
	24181	1
1	24180	

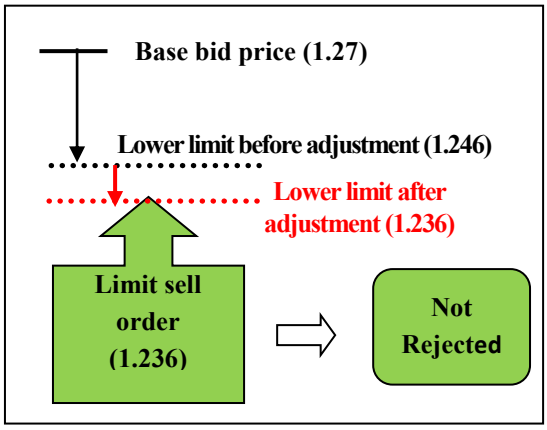
Example 3:

✓ Assuming that the opening reference price of the nearest quarterly month contract of TAIFEX EUR/USD Futures is 1.2 and the price of limit up (1st level +3%) is 1.236.

✓ IF the base bid price of the nearest quarterly month contract of TAIFEX EUR/USD Futures is 1.27 and the lower limit of variation range is 1.246. (=1.27－(1.2×2%)).

✓ Because the lower limit of variation range is above the price of limit up, TAIFEX will adjust the value of lower limit to the price of limit up.

✓ If an investor submits a limit order to sell 1 lot of EUR/USD Futures at 1.236, the order will not be rejected.



Bid	Price	Ask
	1.236	1
1	1.23	
5	1.2256	
10	1.2251	
1	1.2156	
9	1.21	

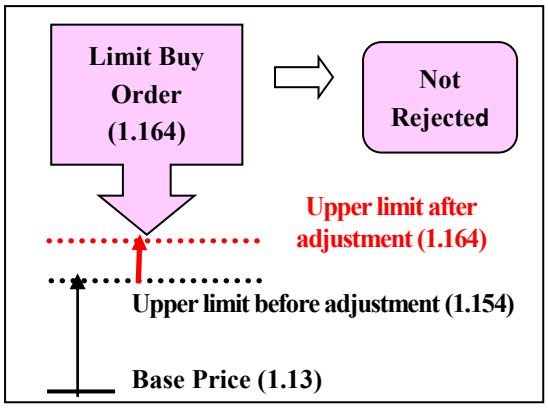
Example 4:

✓ Assuming that the opening reference price of the nearest quarterly month contract of TAIFEX EUR/USD Futures is 1.2 and the price of limit down (1st level -3%) is 1.164.

✓ IF the base ask price of the nearest quarterly month contract of TAIFEX EUR/USD Futures is 1.13 and the upper limit of variation range is 1.154. (=1.13+(1.2×2%)).

✓ Because the upper limit of variation range is below the price of limit down, TAIFEX will adjust the value of upper limit to the price of limit down.

✓ If an investor submits a limit order to buy 1 lot of EUR/USD Futures at 1.164, the order will not be rejected.



Bid	Price	Ask
	1.18	9
	1.17	7
	1.1657	2
	1.1654	1
	1.165	1
1	1.164	