

香港期貨交易所有限公司
(香港交易及結算所有限公司全資附屬公司)

HONG KONG FUTURES EXCHANGE LIMITED
(A wholly-owned subsidiary of Hong Kong Exchanges and Clearing Limited)

HKFE 5-Year MOF Treasury Bond Futures Bond Basket and Reference Price Calculation Methodology

I. Futures Contracts Arrangements

Hong Kong Futures Exchange Limited (“HKFE”) 5-Year China Ministry of Finance Treasury Bond Futures contracts (“Futures Contracts”) will be launched for the most recent two quarters.

The Futures Contract is issued once every quarter, i.e. during March, June, September and December cycles.

The last trading day of a Futures Contract shall be the second Friday of the month in which the Futures Contract matures (i.e. in March, June, September and December), which must be both a HKFE’s Business Day and a Mainland China Interbank Bond Market Business Day. Except in the case of adverse weather or emergency conditions, if the Friday is a non-HKFE’s Business Day or a non-Mainland China Interbank Bond Market Business Day, the last trading day shall be the day which is both HKFE’s Business Day and Mainland China Interbank Bond Market Business Day immediately before that Friday. If the Friday is a non-HKFE’s Business Day due to adverse weather or a non-Mainland China Interbank Bond Market Business Day due to emergency conditions, the last trading day remains unchanged. A HKFE’s Business Day means any day during which HKFE is open for trading the Futures Contract, except Saturdays, Sundays and Hong Kong public holidays.

The listing of a Futures Contract shall be the next HKFE’s Business Day following the last trading day of the Futures Contract.

II. Bond Basket and Reference Price Calculation Methodology

China Central Depository & Clearing Co., Ltd ("CCDC") shall, in accordance with the procedures and methodologies provided by HKFE, determine the Bond Basket and calculate the Daily Reference Price of the Bond Basket for each Futures Contract.

1. Determine the Bond Basket before the listing of each Futures

Contract (Quarterly)

CCDC and HKFE shall, on a quarterly basis, determine the Bond Basket and other items according to the below arrangements before the listing of each Futures Contract. The business day hereby means a Mainland China Interbank Bond Market Business Day.

The date of basket determination is defined as 5 working days before the listing date of the Futures Contract:

- 1) CCDC collects the Price Valuation and Relative Liquidity Measure (as defined below), together with the related Bond Basic Information.

Based on the data of the previous business day, CCDC defines the Bond Universe according to the requirements of HKFE. Bonds in the Bond Universe shall fulfill all the following conditions:

- Issued by the China Ministry of Finance
- RMB denominated
- Tradable in the China interbank bond market
- With fixed coupon rates annually
- With the remaining term to maturity of no less than 4 years (including the 4th year) and no more than 7 years (excluding the 7th year) as of the last trading day of the Futures Contract

- 2) CCDC selects bonds from the Bond Universe to construct the Bond Basket. The bonds selected as the Bond Basket constituents must be the top 3 most liquid treasury bonds in the Bond Universe based on the Relative Liquidity Measure. If the Relative Liquidity Measures of two Bonds are the same, the one with a later initial issue and listing date is preferred.

The number of Bonds to be included in the Bond Basket can be adjusted based on actual circumstances. HKFE must publish any changes to the determination method for the Bond Basket to the market 10 business days in advance.

- 3) HKFE publishes the Bond Basket for the new Futures Contract. Once determined, the Bond Basket for a Futures Contract shall remain unchanged during its contract period.

2. Calculate reference indicators

In respect of each Futures Contract, from its listing to the last trading day of that Futures Contract, CCDC shall calculate the Daily Reference Price of the Bond Basket and the Reference Prices of the Futures Contract on each Mainland China Interbank Bond Market Business Day. On 5 business days before the listing of the Futures Contract, CCDC shall calculate the Relative Liquidity Measure. Should a HKFE's Business Day be a non-Mainland China Interbank Bond Business Day, HKFE may, if required, use data such as the Daily Reference Price of the Bond Basket, the Reference Price of the Futures Contract and the Relative Liquidity Measure provided by CCDC on the business day immediately before that non-Mainland China Interbank Bond Business Day as the reference price for that day.

The calculation of the reference indicators is as follows:

1) Daily Reference Price (Daily)

(i) For each Futures Contract:

a) Collect the yield from CCDC for all the constituents in the Bond Basket, denoting as $r_1, r_2 \dots r_n$

b) Calculate the average yield to maturity of the Bond Basket with the formula:

$$r = \frac{\sum_{i=1}^n r_i}{n}$$

where n is the count of Bonds in the Bond Basket

c) Calculate the Daily Reference Price of the Bond Basket for the day

Nominal 5-year term Bond with coupon rate of 3% paid on an annual basis.

$$\text{Formula: } B(T) = \sum_{i=1}^5 \frac{3\% \times 100}{(1+r)^i} + \frac{100}{(1+r)^5}$$

where r is the average yield to maturity calculated in (b).

2) Reference Price of the Futures Contract (Daily)

(i) Calculate the Reference Price of the Futures Contract based on yield to maturity and market financing cost of the Futures Contract with the formula:

$$F(T) = B(T)(1+t(\text{reporate} - r))$$

where $F(T)$ is the Reference Price of the Futures Contract,

$B(T)$ is the Daily Reference Price of the Bond Basket,

t is (number of days between the calculation date and the maturity date) / actual number of days during the interest-bearing period

Remarks: actual number of days during the interest-bearing period is either 365 or 366 (leap year)

reporate is market financing cost, represented by the system-generated repo rate of 7 days (R07D) issued by CCDC at 17:00 of the calculation date. Should manual calculation be required, CCDC takes the data in the printscreen of China bond website at around 17:00 as the standard,

r is the average yield to maturity of the Bond Basket.

- (ii) The Reference Price of the Futures Contract is a reference calculated by CCDC, as commissioned by HKFE, based on the methodologies provided by HKFE.

3) Relative Liquidity Measure (Quarterly)

- (i) Review the ratio of the settlement data of the bonds in the Bond Universe in the interbank market to the settlement data of all bonds in the interbank market. Exclude the settlement data contributed by the underwriting syndicate from settlement data in the first three business days of the initial listing or subsequent issue date, and then standardize the review period of the bonds in the Bond Basket as the entire review period (“Relative Liquidity Measure”). Then calculate and rank the Relative Liquidity Measure.
- (ii) The review period of the Relative Liquidity Measure is 22 business days. Take for example the Futures Contract for which the Relative Liquidity Measure is collected 5 working days before its listing, the review period shall be from the 27th business day before the listing/ of the Futures Contract to the 6th business day before the listing of the Futures Contract.
- (iii) Relative Liquidity Measure is Licensed Information licensed for HKFE; used by CCDC.