KIS-KB KP 5Y CDS Index

KIS자산평가

Overview and Key Contents

Overview

- The CDS Index represents changes in Credit Default Swap (CDS) values, reflecting credit risk.

- The KISKB KP 5Y CDS Index tracks changes in the 5year CDS values of Korean Paper (KP) issuing institutions.

- The index measures credit risk changes by monitoring credit spread variations of a pool of eligible issuing institutions.

Advantages

- To accurately estimate market credit risk despite the rarity of directly observed CDS spreads in the current Korean market, the CDS Index calculates these spreads as the difference between the bond yield curve and the risk-free rate.

- Reflects the average default risk of constituent institutions, allowing market credit risk estimation.

- Enables the trading of domestic KP issuing institutions' credit risk through the CDS Index.

- Provides a hedge against asset value fluctuations caused by credit spread changes of domestic KP issuing institutions.

Key Contents

\<Table1\> Key Features of the KIS-KB KP 5Y CDS Index

Category	Characteristics
Type	Foreign currency-denominated CDS Index
Announcement Frequency	Closing index announced every business day (19:00, KST)
Base Date	2022.01.04 (100.00p)
Reference Company Universe	KP issuers
Credit Rating	Domestic investment-grade AA- or above
Calculation	Calculate CDS spread using the difference between the bond yield curve of the universe issuers and the risk-free rate, then calculate the value change of CDS
Universe Replacement Date	Every 6 months (March 21 and September 21 each year, the next business day if it's a holiday)
Coupon	100bp annually
Coupon Frequency	Four times a year (March 20, June 20, September 20, and December 20, the next business day if it's a holiday)
Day Count Convention	ACT/360
Accrued Interest Adjustment	Adjusted
Maturity	5 years
Weighting	Equal weighting
Tax	Excluded
Base Currency	USD
Announcing Institution	KIS Pricing

Index Operation Committee

- **Purpose**: Maintains fairness and neutrality in index calculation and operations, deliberating and deciding on matters related to index operations.

Committee Tasks	■ **Reference Entity Universe Requirements Changes** Review and change the inclusion and exclusion criteria for the reference entity universe during regular changes. ■ **Universe Replacement (Rebalancing)** **Regular Change:** Changes the universe to new reference entities meeting the inclusion criteria on rebalancing dates (March and September 21, or the next business day if it's a holiday). **Special Change:** Can change the reference entity universe in case of urgent and significant reasons affecting the index. ■ **Other Matters** Discuss and decide on other matters related to index operations that require review and deliberation

Constituent Universe

Composition of the Reference Company Universe

- Inclusion Requirements

Category	Requirement
Credit Rating	Must be assigned an investment-grade rating of AA- or higher by at least one domestic credit rating agency
Number of Evaluated Items	At least two
Remaining Maturity	Must be at least 3.5 years (issued by institutions with bonds having a remaining maturity of 3.5 years or more)
Exclusions	Private placements, subordinated bonds, convertible bonds (CB), bonds with warrants (BW), floating rate notes (FRN), options, etc.
Other	Can be excluded if deemed inappropriate for inclusion

Regular Changes

- The index operations department changes the reference entity universe according to the criteria.
- **Start Date of New Universe (= Rebalancing Date)**: March and September 21 (or the next business day if it's a holiday).
- **Announcement**: Announced on the website by one business day before the start date.
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Special Changes

- Decided by convening the index operations committee.
- **Requirements:** If an institution no longer meets the universe inclusion criteria or if a credit event or issue arises with the evaluation of the issuing institution's bonds requiring its exclusion from the universe.
- **Advisory:** Changes may be made based on advisory from the index advisory committee if required.
- **Urgent Issues:** In urgent cases, action may be taken first, followed by confirmation through the index operations committee's review.
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Index Advisory Committee

Ensures fairness and objectivity in index operations by seeking advisory from external experts.

Scope of Advice

- **Index Calculation Methodology and Operation :**
  The committee can be consulted on special decisions regarding the calculation and operation of the index.

- **Establishment and Amendment of Index Management Standards**
  The committee provides advice on matters requiring deliberation regarding the establishment and amendment of index management standards as requested by KIS Pricing.

- **Other Matters**
  The committee can be consulted on other matters related to index operation as requested by KIS Pricing.

Advisory Procedure:

- **Reference Entity Universe Review:**
  Review by the index advisory committee requested by the rebalancing date minus seven business days.

- **Incorporation of Advisory Opinions:**
  Incorporate advisory opinions by five business days before the rebalancing date.

- **Immediate Review of Opinions:**
  Immediate review and notification of the results to the advisory committee if there are advisory opinions.

CDS Evaluation

Calculation Method	▪ CDS spreads for the constituent universe are calculated based on the difference between the bond yield curve and the risk-free rate.
	▪ Bond yield curves are generated by grouping the constituent universe by credit rating, based on domestic credit ratings.

Spread Calculation for Basic Assets

▪ Calculation Method for Underlying Assets

- For KRW-denominated Assets

 1. The spread is calculated as the difference between the KRW IRS (Interest Rate Swap) and the yield of the underlying assets.

$$S = Ytm - IRS_{KRW}$$

- For Foreign Currency-denominated Assets

 1. Determine the benchmark rate(IR_B) according to the currency of the asset.

 2. Spread Calculation

$$S = Ytm - IR_B$$

CDS Evaluation Model

▪ Evaluation Model : Gaussian 1-factor model

 1. Calculate the default probability up to any point in time using the following process based on the bond yield curve and risk-free rate curve of the underlying assets.

 ① Calculate the zero rate from the YTM (Yield to Maturity) matrix.

 ② Calculate the forward rate from the zero rate.

 ③ Using the forward rates of the underlying assets and risk-free rates, calculate the conditional survival probability based on the no-arbitrage assumption.

 ④ Calculate the cumulative default probability from the conditional survival probabilities.

 2. Calculate the theoretical par spread of the CDS for the remaining maturity by using the default rates at each spread payment date.

CDS Index Calculation

Index Rebalancing	▪ The index management department drafts the initial universe by the first business day of March and September. ▪ The index advisory committee reviews and finalizes the draft universe. ▪ The index management committee reviews and confirms the universe by the third business day before the rebalancing date. ▪ The updated universe and index information are publicly announced.
Rebalancing Period	▪ Every 6 months
Rebalancing Date	▪ March 21 and September 21 (if it falls on a holiday, the next business day)

Coupon	▪ Coupon Payment
	  - Coupons are paid between the protection buyer and seller on March 20 and September 20 (if it falls on a holiday, the next business day).
	
	▪ Coupon Rate
	  - 100 basis points (bp) per annum

Weighting	▪ Equal Weighting for Each Issuer - Each issuer is assigned the same weight, based on the assumption that the credit risks of each issuer are evaluated independently.

CDS Index
Calculation
Formula

1. CDS Index Calculation Formula

$I_t = I_{t-1}(1 + R_t^{CDS})$

$R_t^{CDS} = CDS_{t-1}(S_{t-1}) - CDS_t(S_t)$, when t is not roll date

$R_t^{CDS} = CDS_t^{oldseries}(S_t) - CDS_t^{newseries}(S_t) + Coupon_t$, when t is roll date

, if $Coupon_t$=0 then R_t^{CDS} : Excess Return

I_t : Total Return Index on Base Date t

R_t^{CDS} : Return of the CDS Index on Base Date t

$CDS_t(S_t)$: Value of the CDS Contract Buyer on Base Date t

$Coupon_t$: CDS Index Coupon on Base Date t

2. CDS Index Spread Calculation Formula

$CDS_t(S_t) = PV_{Default} - PV_{Fee}$

$= S_t \times RPV01_t - C(T) \times RPV01_t$

$= (S_t - C(T)) \times RPV01_t$

S_t : CDS Index Spread on Base Date t

$C(T)$: CDS Index Coupon on Base Date t

$RPV01_t$: the value of an annuity paying 1 dollar per year until the maturity of
the CDS Index, calculated on base date t

$S_t = \dfrac{1}{M}\sum_{m=1}^{M} S_{m,t}$

$RPV01_t = \dfrac{1}{M}\sum_{m=1}^{M} RPV01_{m,t}$

3. CDS Index Price Calculation Formula

$P_t = 100 - 100 \times D_t \times (S_t - C(T))$

P_t : CDS Index Price

D_t : CDS Index Duration

Credit Events and Handling

Credit Events
- Definition of Credit Events

  Default, disappearance of essential pricing elements, or corporate restructuring making future predictions impossible.

Handling
- Handling Procedures

  1. Exclusion of the Affected Reference Company
     ① In the event of a specific credit event, the inclusion/exclusion of the reference company in the universe is discussed through the Index Operation Committee and handled as a special change.
     ② The weight of the affected company is processed as 0% and excluded from the universe.

  2. Index Handling (Actions for Index Calculation Based on the Timing of Occurrence)
     ① Before Cut-off (4 PM)
     Exclude the reference company that experienced the credit event from the basket and calculate the index as of day T.
     ② After Cut-off (4 PM)
     Include the reference company that experienced the credit event in the basket until day T and calculate the index. Exclude it from the basket starting from T+1 and calculate the index.

Disclosure

Index Calculation	Calculate the closing index at 19:00 every business day.(KST)
Disclosure	Announce after transmitting the closing index at 19:00 every business day on the website (www.bond.co.kr) and Refinitiv (planned).