



# BIST-KYD INDICES METHODOLOGY

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## 1. PURPOSE

BIST–KYD Indices are created in order to measure the daily returns of a variety of financial instruments such as debt securities, lease certificates, repo, gold, bank deposit rates, profit share rates, and mutual and exchange traded funds. The indices created by the Turkish Institutional Investment Managers’ Association (KYD) are calculated by Borsa İstanbul A.Ş. (Borsa İstanbul) from 07/01/2015 within the framework of the agreement signed with the KYD and Borsa İstanbul. BIST-KYD Indices are the continuation of KYD Indices.

Borsa İstanbul has full control over all indices calculated within the scope of this Methodology and is responsible for all processes related to the creation, calculation and publication of these indices.

## 2. CALCULATED INDICES

### 2.1. BIST-KYD Debt Securities Indices

#### 2.1.1. BIST–KYD GDS Indices

BIST–KYD GDS Indices are created to measure the return of zero coupon and fixed-rate coupon Turkish Government Debt Securities (GDS) issued in Turkish Lira (excluding special category state domestic borrowing notes) and traded in the Borsa İstanbul Debt Securities Market (DSM) for several maturity bands. BIST–KYD GDS Indices have two different versions with T+0 and T+1 value date prices, the codes and the names of the indices are stated in Article 2.10. Only the securities which include both the face value and stripped coupons, if exists any, are included in the indices.

Indices are categorized mainly into two groups based on the number of remaining days to the maturity. The first group consists of BIST-KYD GDS 91 Days, BIST-KYD GDS 91 Days T1, BIST-KYD GDS 182 Days, BIST-KYD GDS 182 Days T1, BIST-KYD GDS 365 Days, BIST-KYD GDS 365 Days T1, BIST-KYD GDS 547 Days, BIST-KYD GDS 547 Days T1, BIST-KYD GDS ALL and BIST-KYD GDS ALL T1 indices which are calculated for short term maturity lengths. The second group consists of BIST-KYD GDS Short, BIST-KYD GDS Short T1, BIST-KYD GDS Medium, BIST-KYD GDS Medium T1, BIST-KYD GDS Long and BIST-KYD GDS Long T1 indices which are calculated for relatively longer-term maturity lengths.

Maturity length classification of the indices is shown in the table below remaining days to the maturity are calculated using the “Macaulay Duration” formula.

NAME OF INDICES	REMAINING DAYS TO MATURITY
BIST-KYD GDS 91 DAYS and BIST-KYD GDS 91 DAYS T1	0 - 180
BIST-KYD GDS 182 DAYS and BIST-KYD GDS 182 DAYS T1	122 - 242
BIST-KYD GDS 365 DAYS and BIST-KYD GDS 365 DAYS T1	243 - 488
BIST-KYD GDS 547 DAYS and BIST-KYD GDS 547 DAYS T1	365 - 729
BIST-KYD GDS ALL and BIST-KYD GDS ALL T1	All Maturities
BIST-KYD GDS SHORT and BIST-KYD GDS SHORT T1	0 - 365
BIST-KYD GDS MEDIUM and BIST-KYD GDS MEDIUM T1	366 - 1095
BIST-KYD GDS LONG and BIST-KYD GDS LONG T1	1096 and above

### 2.1.2. BIST-KYD GDS Floating Rate Indices

BIST-KYD GDS Floating Rate Indices are created to measure the return of floating rate coupon GDS issued in Turkish Lira (excluding special category state domestic borrowing notes) traded in the DSM and the return of GDS whose coupon is calculated based on the return of the BIST TLREF Index as whole. BIST-KYD GDS Indices have two different versions with T+0 and T+1 value date prices, the codes and the names of the indices are stated in Article 2.10. There is no distinction between the indices in terms of maturity lengths.

For GDS, whose coupon rate is based on the return of the BIST TLREF Index, coupon amount is calculated as specified in Article 3.1. In yield to maturity calculations, this coupon amount is taken into account in bonds' cash flows based on the assumption that coupon amounts will remain the same for future undetermined coupon amounts. For other GDS whose coupon rates are not calculated based on the return of the BIST TLREF Index, the most recent finalized coupon rate is taken into account in bonds' cash flows based on the assumption that coupon amounts will remain the same for future undetermined coupon amounts, if there exists any, in yield to maturity calculations.

### 2.1.3. BIST-KYD CPI Indexed Government Bond Indices

BIST-KYD CPI Indexed Government Bond Indices are created to reflect the returns of CPI Indexed GDS issued in Turkish Lira (excluding special category state domestic borrowing notes) and traded in DSM as a whole. BIST-KYD CPI Indexed Government Bond Indices have two different versions with T+0 and T+1 value date prices, the codes and the names of the indices are stated in Article 2.10. There is no distinction between the indices in terms of maturity lengths.

#### 2.1.4. BIST-KYD Corporate Bond Indices

BIST-KYD Corporate Bond Indices are created to reflect the returns of corporate bonds issued through a public offering or sold to qualified investors in Turkish Lira and traded in DSM. BIST-KYD Corporate Bond Indices have two different versions with T+0 and T+1 value date prices, the codes and the names of the indices are stated in Article 2.10.

Two types of indices are calculated: BIST-KYD Corporate Bond Fixed Rate and BIST-KYD Corporate Bond Floating Rate indices. Both indices have two different versions with T+0 and T+1 value date prices. BIST-KYD Corporate Bond Fixed Rate and BIST-KYD Corporate Bond Fixed Rate T1 Indices consist of zero coupon and fixed rate coupon corporate bonds, BIST-KYD Corporate Bond Floating Rate and BIST-KYD Corporate Bond Floating Rate T1 Indices consist of floating rate coupon corporate bonds and corporate bonds whose coupon rate is calculated based on the return of the BIST TLREF Index. Only the corporate bonds whose outstanding amount is at least TL 300 million and principal value is paid as a lump sum on the maturity date and cannot be redeemed early by the issuer, are included in the indices.

CPI Indexed corporate bonds, asset backed securities, structured bonds, Tier 2 capital issues, convertible bonds, any other fixed income security which include option, securities whose next coupon rate is unclear on the dated date or coupon date and determined with doing return comparison or have minimum/maximum limits for coupon amount or spread are excluded from the indices. Among the securities whose next coupon rate is unclear on its dated date or its coupon date, only securities whose day count convention is Actual/365, don't have any coupon date on weekends or public holidays, are included in the indices.

For securities which are included in BIST-KYD Corporate Bond Floating Rate Indices and whose coupon rate is calculated based on the return of the BIST TLREF Index, the coupon amount is calculated as specified in Article 3.1. This coupon amount is taken into account in bonds' cash flows based on the assumption that coupon amounts will remain the same for the future coupon amounts in yield to maturity calculation. In yield to maturity calculation of other floating rate coupon corporate bonds whose coupon rates are not calculated based on the return of the BIST TLREF Index, last unpaid coupon amount is taken into account in bonds' cash flows based on the assumption that coupon amounts will remain the same for future undetermined coupon amounts, if there exists any. There is no distinction between the indices in terms of maturity lengths.

#### 2.1.5. BIST-KYD Government Eurobond Indices

BIST-KYD GOVERNMENT EUROBOND USD and BIST-KYD GOVERNMENT EUROBOND EUR indices are calculated based on daily returns of US Dollar and Euro denominated eurobonds issued by Ministry of Treasury and Finance of Türkiye, whereas BIST-KYD GOVERNMENT EUROBOND USD (TRY) and BIST-KYD GOVERNMENT EUROBOND EUR (TRY) are calculated based on corresponding converted returns of these

indices to Turkish Lira by using The Central Bank of the Republic of Türkiye (CBRT) indicative forex buying rates announced at 15:30.

In addition to these indices which have no distinction in terms of maturity lengths, three different versions of US Dollar denominated government eurobonds indices based on maturities according to the remaining days to maturity and the return versions of these three indices, along with the Turkish Lira versions of these via conversion by using CBRT benchmark forex buying rates announced at 15:30, have also started to be calculated additionally as of December 23, 2019. For USD indices, starting values are closing values of BIST-KYD GOVERNMENT EUROBOND USD on December 20, 2019. For (TRY) indices, starting values are the closing values of the BIST-KYD GOVERNMENT EUROBOND USD (TRY) indices on December 20, 2019. The list of Government Eurobond Indices being calculated is listed in the table below.

INDEX CODE	INDEX NAME	REMAINING DAYS TO MATURITY
EBUSD	BIST-KYD GOVERNMENT EUROBOND USD	All Maturities
EUSTL	BIST-KYD GOVERNMENT EUROBOND USD (TRY)	All Maturities
EBEUR	BIST-KYD GOVERNMENT EUROBOND EUR	All Maturities
EEUTL	BIST-KYD GOVERNMENT EUROBOND EUR (TRY)	All Maturities
EBUSDK	BIST-KYD GOVERNMENT EUROBOND 0-5 YEARS USD	0-1825
EUSTLK	BIST-KYD GOVERNMENT EUROBOND 0-5 YEARS USD (TRY)	0-1825
EBUSDO	BIST-KYD GOVERNMENT EUROBOND 5-15 YEARS USD	1826-5475
EUSTLO	BIST-KYD GOVERNMENT EUROBOND 5-15 YEARS USD (TRY)	1826-5475
EBUSDU	BIST-KYD GOVERNMENT EUROBOND 15+ YEARS USD	5476 and above
EUSTLU	BIST-KYD GOVERNMENT EUROBOND 15+ YEARS USD (TRY)	5476 and above

30/360 day count convention is used for US Dollar denominated eurobonds and Actual/Actual day convention is used for Euro denominated eurobonds in accrued interest calculations.

#### 2.1.6. BIST-KYD Corporate Eurobond Indices

Two indices are calculated; one shows the returns of US Dollar denominated eurobonds issued by Turkish companies in foreign markets and the other shows the adjusted Turkish Lira returns of these eurobonds. CBRT indicative forex buying rates are used to adjust corresponding returns to Turkish Lira.

Eurobonds, issued by Reg S sales method, are classified as bullet bonds (principal value is paid all at once on the maturity date and cannot be redeemed early by an issuer) and whose outstanding amount is at least \$300 million, are included in the indices. US Dollar denominated lease certificates issued by Turkish companies in foreign markets, subordinated debt instruments and defaulted (fail to pay coupon or principal



payment) debt instruments are not included in the corresponding indices. In accrued interest calculations 30/360 day count convention is used. There is no distinction between the indices in terms of maturity lengths.

## 2.2. BIST-KYD Lease Certificates Indices

BIST-KYD Lease Certificates Indices are created in order to measure the returns of lease certificates in Turkish Lira (zero coupon and fixed rate coupon certificates, excluding CPI Indexed Lease Certificates) traded in DSM as a whole. Two types of indices, including government and corporate lease certificates indices, are calculated. BIST-KYD Lease Certificates Indices have two different versions with T+0 and T+1 value date prices, the codes and the names of the indices are stated in Article 2.10.

BIST-KYD Government Lease Certificates Indices consist of lease certificates which are issued by Turkish Treasury's Asset Leasing Company through an auction or direct sale (excluding special category state domestic borrowing notes).

In addition to BIST-KYD Government Lease Certificates Indices, which have no distinction in terms of maturity, in order to measure the returns of government lease certificates in three different maturity lengths that are issued in Turkish Lira and traded in DSM (including zero coupon and fixed rate coupon certificates, excluding CPI Indexed Lease Certificates), three additional indices are calculated. The maturity length classification of the indices is shown in the table below. Remaining days to the maturity are calculated using the "Macaulay Duration" formula.

NAME OF INDICES	REMAINING DAYS TO MATURITY
BIST-KYD Government Lease Certificates BIST-KYD Government Lease Certificates T1	All Maturities
BIST-KYD Government Lease Certificates Short BIST-KYD Kamu Kira Sertifikaları Short T1	0-365
BIST-KYD Kamu Kira Sertifikaları Medium BIST-KYD Kamu Kira Sertifikaları Medium T1	366-1095
BIST-KYD Kamu Kira Sertifikaları Long BIST-KYD Kamu Kira Sertifikaları Long T1	1096 ve üzeri

BIST-KYD Corporate Lease Certificates Indices consist of lease certificates issued by Turkish corporations through a public offering or sold to qualified investors and whose outstanding amount is at least TL 300 million. There is no distinction between the indices in terms of maturity lengths.

## 2.3. BIST-KYD CPI Government Lease Certificates Indices

BIST-KYD CPI Government Lease Certificates Indices are created in order to measure the returns of CPI indexed government lease certificates traded in DSM in Turkish Lira (excluding special category state domestic borrowing notes) as a whole. BIST-KYD CPI Government Lease Certificates Indices have two



different versions with T+0 and T+1 value date prices, the codes and the names of the indices are stated in Article 2.10. There is no distinction between the indices in terms of maturity lengths.

#### **2.4. BIST-KYD Government Lease Certificates USD Indices**

BIST-KYD Government Lease Certificates USD T1 index is calculated based on daily returns of US Dollar denominated lease certificates issued in foreign markets by Ministry of Treasury and Finance of Türkiye, whereas BIST-KYD Government Lease Certificates USD (TRY) T1 index is calculated based on corresponding converted returns of this index to Turkish Lira by using CBRT indicative forex buying rates announced at 15:30. The accrued interests of the debt instruments included in the indices are calculated with T + 1 value and the 30/360 day convention is used.

#### **2.5. BIST-KYD Repo Indices**

BIST-KYD Repo Indices are calculated in two different types in order to monitor gross and net repo returns of overnight repo transactions in DSM Repo-Reverse Repo Market. Since returns of reverse-repo transactions will be realized on the next business day, indices reflect the returns realized on the next business day.

#### **2.6. BIST-KYD Gold Price Indices**

BIST-KYD Gold Price Indices are calculated in two types based on the weighted average and trade prices of gold transactions realized in Precious Metals and Diamond Markets (PMD).

#### **2.7. BIST-KYD 1 Month Deposit Indices**

BIST-KYD 1 Month Deposit Indices are calculated in three different types by using gross deposit rates up to 1 month in Turkish Lira, US Dollar and Euro.

In calculations, “Weighted Average Interest Rates for Deposits” announced by CBRT Electronic Data Delivery System (EDDS) are taken into considerations. It is assumed that the withdrawal of deposits before the maturity date doesn’t cause the loss of the interest gained. Indices reflect the returns realized on the next business day.

#### **2.8. BIST-KYD 1 Month Profit Share Indices**

BIST-KYD 1 Month Profit Share Indices are calculated in three different types by using 1-month gross profit share rates in Turkish Lira, US Dollar and Euro. In calculations, Profit Sharing Rates announced in the Participation Banks Association of Türkiye (TKBB) website are taken into considerations. The profit share rates used in calculations are paid out rates, so it is assumed that it will remain the same in calculations. Moreover, it is assumed that withdrawal of money before the maturity date does not cause the loss of the interest gained. Indices reflect the returns realized on the next business day.

## 2.9. BIST-KYD Fund Indices

Two BIST-KYD Fund Indices, for fixed income funds and equity funds, are calculated to measure the return performances of the top 50 funds for each type. Since fund data, which is announced by Takas İstanbul (Istanbul Clearing, Settlement and Custody Bank) and used in index calculations, is the previous business day's close data, index values show the returns of the previous business day.

## 2.10. Names and Codes of BIST-KYD Debt Securities Indices and BIST-KYD Lease

### Certificates Indices

INDICES WITH T+0 VALUE DATE PRICES		INDICES WITH T+1 VALUE DATE PRICES	
Index Code	Index Name	Index Code	Index Name
TD91G	BIST-KYD GDS 91 DAYS	TD91GT1	BIST-KYD GDS 91 DAYS T1
T182G	BIST-KYD GDS 182 DAYS	T182GT1	BIST-KYD GDS 182 DAYS T1
T365G	BIST-KYD GDS 365 DAYS	T365GT1	BIST-KYD GDS 365 DAYS T1
T547G	BIST-KYD GDS 547 DAYS	T547GT1	BIST-KYD GDS 547 DAYS T1
TKISA	BIST-KYD GDS SHORT	TKISAT1	BIST-KYD GDS SHORT T1
TORTA	BIST-KYD GDS MEDIUM	TORTAT1	BIST-KYD GDS MEDIUM T1
TUZUN	BIST-KYD GDS LONG	TUZUNT1	BIST-KYD GDS LONG T1
TDTUM	BIST-KYD GDS ALL	TDTUMT1	BIST-KYD GDS ALL T1
TDDEG	BIST-KYD GDS FLOATING RATE	TDDEGT1	BIST-KYD GDS FLOATING RATE T1
TTUFE	BIST-KYD CPI INDEXED GOVERNMENT BOND	TTUFET1	BIST-KYD CPI INDEXED GOVERNMENT BOND T1
KDEVL	BIST-KYD GOVERNMENT LEASE CERTIFICATES	KDEVLT1	BIST-KYD GOVERNMENT LEASE CERTIFICATES T1
KDEVLK	BIST-KYD GOVERNMENT LEASE CERTIFICATES SHORT	KDEVLT1	BIST-KYD GOVERNMENT LEASE CERTIFICATES SHORT T1
KDEVLO	BIST-KYD GOVERNMENT LEASE CERTIFICATES MEDIUM	KDEVLOT1	BIST-KYD GOVERNMENT LEASE CERTIFICATES MEDIUM T1
KDEVLU	BIST-KYD GOVERNMENT LEASE CERTIFICATES LONG	KDEVLOT1	BIST-KYD GOVERNMENT LEASE CERTIFICATES LONG T1
KOZEL	BIST-KYD CORPORATE LEASE CERTIFICATES	KOZELT1	BIST-KYD CORPORATE LEASE CERTIFICATES T1
TTUFEK	BIST-KYD CPI GOVERNMENT LEASE CERTIFICATES	TTUFEKT1	BIST-KYD CPI GOVERNMENT LEASE CERTIFICATES T1
OSABT	BIST-KYD CORPORATE BOND FIXED RATE	OSABTT1	BIST-KYD CORPORATE BOND FIXED RATE T1
ODEGS	BIST-KYD CORPORATE BOND FLOATING RATE	ODEGST1	BIST-KYD CORPORATE BOND FLOATING RATE T1

## 3. CALCULATION METHODOLOGY

### 3.1. Prices Used in Index Calculations and Data Hierarchy

In the calculations of BIST-KYD Repo Indices, the weighted average overnight interest rates, in DSM Repo-Reverse Repo Normal Orders Market, secured with TL dominated GDS and whose effective date is same day

are used. If there is no transaction in the related market or the interest rates used in the indices cannot be reached due to the existence of unusual market conditions, the indices continue to be calculated with the latest interest rate used.

In the calculations of BIST-KYD Government Eurobond Indices, BIST-KYD Corporate Eurobond Indices, and BIST-KYD Government Lease Certificates USD Indices dirty prices are used. Accrued interest is added over BVAL Mid Prices determined at London 12:00 pm fixing time (for half days determined at Tokyo 05:00 pm fixing time) obtained through Bloomberg Valuation Services (BVAL) in order to find dirty prices. If the BVAL prices of the securities used in the indices remain the same or cannot be reached due to the existence of unusual market conditions, the indices continue to be calculated with the prices found by adding accrued interest to the latest BVAL mid prices.

For all other BIST-KYD Debt Securities Indices, BIST-KYD Corporate Lease Certificates Indices, and BIST-KYD CPI Government Lease Certificates Indices, the weighted average settlement prices of transactions announced in DSM Outright Purchases and Sales Normal Orders Market and Watchlist Market are taken into considerations. In this context, cross trades, trade report transactions, non cleared transactions, and cancelled trades are excluded from the index calculations. In the indices calculated by using T+0 value prices, cancellations made after the session affect prices used in the index calculations and therefore, they are taken into account in index calculations.

If a security in the indices does not have any same day settled transaction on any day or the prices of the securities used in the indices cannot be reached due to the existence of unusual market conditions, in order to find the forward carried weighted average settlement price, the last settled weighted average settlement price is carried forward under the assumption that yield will stay same until the maturity.

For securities in the indices whose coupon rates are determined by the return of the BIST TLREF Index, do not have any same day settled transaction on any day or the prices of the securities used in the indices cannot be reached due to the existence of unusual market conditions , in order to find forward carried weighted average settlement price, last settled weighted average settlement price carried forward under the assumption that yield will stay same until the maturity by using daily estimated periodic coupon amount.

For securities whose coupon rates are calculated based on the return of the BIST TLREF Index, periodic coupon rate which will be paid on the coupon date is calculated with formula below using the beginning and ending values of BIST TLREF Index of coupon calculation period. Beginning day of the coupon calculation period is date which is k business day before dated date or most recent coupon date in the past and ending day of the coupon calculation period is date which is k business day before most recent coupon date in the future (k is determined by issuers).

$$\text{Periodical coupon rate which will be paid in coupon date (\%)} = \left( \frac{\text{BIST TLREF}_{\text{Ending}}}{\text{BIST TLREF}_{\text{Beginning}}} - 1 \right) \times 100 + \left( \text{Spread} \times \frac{n_1}{365} \right)$$

$\text{BIST TLREF}_{\text{Beginning}}$  = Value of BIST TLREF Index on the beginning day of the coupon calculation period

$\text{BIST TLREF}_{\text{Ending}}$  = Value of BIST TLREF Index on the ending day of the coupon calculation period

Spread = Additional annual return rate (%)

$n_1$  = Number of days on coupon calculation period

In the calculations within the coupon period where the periodic coupon rate to be paid on the coupon date of the securities is not yet determined, the coupon rate is calculated by periodically estimating the return calculated using the BIST TLREF Index values announced for the day of the calculation as shown in the formula below and this coupon amount is assumed to remain the same for subsequent coupons.

$$\text{Periodical coupon rate within the coupon period (\%)} = \left( \left( \frac{\text{BIST TLREF}_{\text{Last}}}{\text{BIST TLREF}_{\text{Beginning}}} \right)^{\frac{n_1}{n_2}} - 1 \right) \times 100 + \left( \text{Spread} \times \frac{n_1}{365} \right)$$

$\text{BIST TLREF}_{\text{Last}}$  = Latest value of BIST TLREF Index for the latest working day

$\text{BIST TLREF}_{\text{Beginning}}$  = Value of BIST TLREF Index on the beginning day of the coupon calculation period

Spread = Additional annual return rate (%)

$n_1$  = Number of days on coupon calculation period

$n_2$ : Number of calendar days between the next business day after the end of the working day and the next business day from the beginning of the period for the coupon calculation

Carried forward prices of CPI Indexed GDS and CPI Lease Certificates are calculated by using yield to maturity based on dirty prices on the condition that the securities do not have any same day settled transaction in on any day or the prices of the securities used in the indices cannot be reached due to the existence of unusual market conditions. CPI carried forward average settlement price is calculated by multiplying carried forward dirty prices with that day inflation rate, announced by Republic of Türkiye Prime Ministry of Treasury and Finance, in the indices that are calculated by using T+0 value date prices and with next business day inflation rate in the indices that are calculated by using T+1 value date prices.

In BIST-KYD Gold Price Indices, TL/ kg converted weighted average prices and TL/ kg converted trade prices of same day value USD/ounce gold transactions in PMD which have 995/1000 fineness, London Bullion Market Association (LBMA) in and out, main vault, standard 1 kg bullion Gold properties are used. In the calculation of the indices, fixing transactions are not taken into consideration. If there is no related transaction in the market or the prices used in the indices cannot be reached due to the existence of unusual market conditions, the indices continue to be calculated with the latest prices used.

In BIST-KYD 1 Month Deposit Indices, interest rates for 1 month term deposits in Turkish Lira, US Dollar and Euro announced by CBRT Electronic Data Delivery System (EDDS) are taken into considerations. Interest rates are announced in weekly periods, so until the announcement of new weekly rates, last announced rates are used in calculations.

Profit share rates used in BIST-KYD 1 Month Profit Share Indices are based on 1 month Turkish Lira, US Dollar and Euro profit share rates announced by Participation Banks Association of Türkiye (TKBB). Profit share rates are announced in weekly periods, so until the announcement of new weekly rates, last announced rates are used in calculations.

In BIST-KYD Fund Indices calculation, Turkish Lira denominated unit share prices and number of participation certificates declared by Takas İstanbul are used. If the unit share prices of funds used in the indices cannot be reached due to the existence of unusual market conditions, the indices continue to be calculated with the unit share prices and number of participation certificates used on the last trading day.

### **3.2. Weighting Method**

BIST-KYD Debt Securities Indices are market value weighted indices. The market value of a security is calculated by multiplying the nominal amount with the weighted average settlement price. BIST-KYD Fund Indices are equal weighted indices. Returns of the indices are equal to the simple arithmetic average of the returns of constituent funds.

### **3.3. Inclusion in Indices**

Zero coupon bonds, fixed rate coupon bonds, floating rate coupon bonds, CPI indexed government bonds, government lease certificates, and CPI government lease certificates are added to indices with auction prices in the indices with T+0 value date prices and with one business day carried forward auction prices in the indices with T+1 value date prices on the first settlement date. Return of the security starts to be reflected on the indices effective from the next business day after the first settlement date. If the corresponding security is not traded throughout the business day, it is valued with one business day forward price in the indices with T+0 value date prices and with two business days forward price in the indices with T+1 value date prices carried from the auction price valid on the first settlement date. The most recent coupon rate calculated as specified in Article 3.1 is used on the calculation of forward price for GDS whose coupon rates are determined by the return of the BIST TLREF Index in case corresponding security is not traded throughout the business day.

USD Government lease certificates with T+1 value date prices are included in the indices with one business day carried forward auction prices on the first settlement date. Returns are reflected on the next business day after the first settlement date.

Corporate debt securities are included in the indices on the first settlement date with the issue price in the indices with T+0 value date prices and with one business day carried forward issue price in the indices with T+1 value date prices. The bonds, which have no issue information as of their issue dates, are included in the indices with a price that is calculated separately for the indices with T+0 and T+1 value date prices by carrying forward its issue price to the previous business day of the day on which issue data is available. This means that their returns are taken into account in the index calculations as from the day on which issue information is available. The most recent coupon rate calculated as specified in Article 3.1 is used on the calculation of forward price which is effective from a date when issue information is available with using issue price for securities whose coupon rates are determined by the return of the BIST TLREF Index. Return of the security starts to be reflected on the indices effective from the next business day after the first settlement date. If a bond has no transaction throughout the business day, it is valued with the forward T+0 and T+1 prices carried from the issue price valid on the first settlement date.

Government eurobonds are included in the indices on the first settlement date with the auction prices. Returns of eurobonds are reflected on the next business day after the first settlement date.

BIST-KYD Corporate Eurobond Indices have four index periods, January-March, April-June, July-September and October-December. Results of the periodic reviews on indices will be effective from the first trading day of the following index period. In periodic reviews, debt securities which are issued in respect of 7th business day evening prior to the next index period are taken into consideration. These changes are announced at least three days prior to the first trading day of each index period on Borsa Istanbul website.

There are four index periods, January-March, April-June, July-September and October-December, for fund indices. Index constituents are determined through the periodic reviews based on the fund data published by Takas İstanbul on the 5<sup>th</sup> business day prior to the relevant index period. In periodic reviews, funds are classified as “Fixed Income Fund” and “Equity Fund” based on their umbrella fund information available at Takas İstanbul and the top 50 funds are selected for each corresponding fund index based on the funds’ total values. Exchange traded funds are also considered eligible for inclusion in the indices even though they are not classified as umbrella funds. The one with a greater number of fund participation certificates is selected in case of equality.

In periodic reviews, the funds to be included in the indices are announced on the Borsa Istanbul webpage 3 days prior to the first trading day of each index period. These new constituent lists are used during the corresponding index period.

### 3.4. Exclusion from Indices

For the indices calculated by using T+0 value date prices, debt securities remain in the indices for the last time at the maturity date, or if it is a holiday, then the next business day with the face amount. For the indices calculated by using T+1 value date prices, debt securities remain in the indices for the last time at the previous business day of maturity date with the face amount.

Constituent debt securities and lease certificates of BIST-KYD Corporate Bond Fixed Rate, BIST-KYD Corporate Bond Floating Rate or BIST-KYD Corporate Lease Certificates Indices which fail to make their coupon or principal payments:

- are excluded from the indices with “zero” value, effective from their delisting date if they are delisted due to not making a debt restructuring or not meeting the trading requirements in Borsa İstanbul markets despite the debt restructuring,
- remain in the indices with their latest value if they make debt restructuring and meet the trading requirements in Borsa İstanbul markets. Within this context, securities or lease certificates which trade in Borsa İstanbul Outright Purchases and Sales Market or Watchlist Market with new ISIN code (due to restructuring) or old ISIN code will remain in the Indices as long as it fulfills other Index rules.

Defaulted eurobonds are excluded from BIST-KYD Corporate Eurobond Indices effective from their default date. Even if their default situation disappears, they are not included in indices until the next index period. If a constituent eurobond in BIST-KYD Corporate Eurobond Indices matures, it is excluded from the indices and no new security is included instead of it. Inclusion in the indices will only be effective with the results of quarterly periodic reviews. If there exists a partial redemption for a constituent included in BIST-KYD Corporate Eurobond Indices through buyback auctions and whose nominal amount decreases under \$300 million, partially called or repurchased eurobonds are removed from the indices on the first next quarterly periodic review. For BIST-KYD Fund Indices, a fund will not be considered eligible for inclusion in the indices until the next review period; in such cases, the liquidation of the fund, changing the scope of the fund or changing the code of the fund during the index period.

### 3.5. Nominal Amounts

The total nominal amount of GDS is the total issued amount in the Republic of Türkiye Prime Ministry of Treasury and Finance’s auctions. This amount includes the sales to the public and market makers with noncompetitive bids, sales after an auction, buyback auctions, sales with exchange auctions and sales with a public offering. Nominal amounts of reissues of GDS, government and corporate lease certificates, USD government lease certificates, CPI indexed government lease certificates, corporate bonds and government and corporate eurobonds are effective at the first settlement date. In buyback auctions of all debt securities,



the nominal amount of the securities is decreased by the buyback amount effective from the value date of the buyback.

### 3.6. Lists of Constituent Securities

Lists of constituent securities in the indices are determined and used in the index calculations by Borsa İstanbul according to the Methodology.

If the securities to be included in the indices cannot be determined due to lack of data or in case of unusual market conditions, the indices continue to be calculated with the current list.

### 3.7. BIST-KYD Debt Securities and BIST-KYD Lease Certificate Indices Formula

BIST-KYD Debt Securities, BIST-KYD Lease Certificate, BIST-KYD CPI Government Lease Certificates Indices, and BIST-KYD Government Lease Certificates USD Indices are calculated on the basis of following formula:

$$\text{Index}_t = \text{Index}_{t-1} \times \left( 1 + \frac{\sum_{i=1}^n w_{i,t-1} \times a_{i,t} \times r_{i,t}}{\sum_{i=1}^n w_{i,t-1} \times a_{i,t}} \right) \quad (1)$$

$\text{Index}_t$ : Value of index on day t

$w_{i,t-1}$ : Market value of debt security i on day t-1

$$w_{i,t-1} = N_{i,t-1} \times P_{i,t-1} \quad (2)$$

$N_{i,t-1}$ : Nominal amount of debt security i on day t-1

$P_{i,t-1}$ : Weighted average settlement price of security i on day t-1

$r_{i,t}$ : Return of debt security i on day t

n: Number of debt securities in indices

$a_{i,t}$ : Weighting factor of debt security i on day t (%)

Except for BIST-KYD GDS 91 Days, BIST-KYD GDS 91 Days T1, BIST-KYD GDS 182 Days, BIST-KYD GDS 182 Days T1, BIST-KYD GDS 365 Days, BIST-KYD GDS 365 Days T1, BIST-KYD GDS 547 Days and BIST-KYD GDS 547 Days T1 weighting factor is taken as 1 in index calculations. The weighting factor is determined by using the table below according to the maturities in the index in which the relevant debt security is included.

BIST-KYD	91 Days	182 Days	365 Days	547 Days
GDS Indices				
Weighting Factor	Remaining Days to Maturity	Remaining Days to Maturity	Remaining Days to Maturity	Remaining Days to Maturity
(%)				
10	0-21 and 159-180	122-136 and 227-242	243-273 and 458-488	365-410 and 684-729

20	22-44 and 136-158	137-152 and 212-226	274-304 and 427-457	411-456 and 638-683
30	45-67 and 113-135	153-167 and 197-211	305-334 and 397-426	457-502 and 592-637
40	68-112	168-196	335-396	503-591

### 3.8. BIST-KYD Repo Indices Formula

BIST-KYD Indices are calculated on the basis of the following formula:

$$\text{Index}_t = \text{Index}_{t-1} \times \left[ 1 + R \times (1 - S) \times \frac{g}{365} \right] \quad (3)$$

$\text{Index}_t$ : Value of Repo Index on day t

R: Weighted average gross overnight interest rate on day t

g : days between t business day and t + 1 business day (Repo period)

S : Tax rate of repo transaction (In gross repo indices S tax rate is zero)

### 3.9. BIST-KYD Gold Price Indices Formula

In BIST-KYD Gold Price Indices, the weighted average and close prices of the same day value USD/ounce gold transactions in PMD, which is converted to TL/ kg, are used. Indices are calculated on the basis of the following formula:

$$\text{Gold Index}_t = \text{Gold Index}_{\text{base}} * \left( \frac{\text{Price}_t}{\text{Price}_{\text{base}}} \right) \quad (4)$$

**Gold Index<sub>t</sub>** : Value of Gold Index on day t

**Gold Index<sub>base</sub>** : Base value of Gold Index

**Price<sub>t</sub>** : TL/Kg converted prices of weighted average price and trade price of same day settled USD/ounce transaction.

**Price<sub>base</sub>** : TL/Kg converted prices of weighted average price and close price of base day settled USD/ounce transaction

The following formula is used to convert USD/ounce transaction to TL/kg:

$$\text{Price}_t = \text{Price} \times \text{Exchange Rate} \times \text{CF} \quad (5)$$

Price: PMD weighted average and close price of same day settled USD/ounce transaction.

Exchange Rate: The Central Bank of the Republic of Türkiye (CBRT) indicative forex buying rates announced at 15:30

CF: 32, 1507465 ounce/kg conversion factor

### 3.10. BIST-KYD 1 Month Deposit Indices Formula

Turkish Lira, US Dollar and Euro up to 1 month term deposits are multiplied with 30/365; and using these monthly yields, Deposit Yield is calculated on the basis of the following formula:

$$\text{Deposit Yield} = (1 + \text{Month Yield})^{g/30} \quad (6)$$

g: days between t business day and t + 1 business day

Today's Deposit Yield is calculated by increasing the previous day index value by calculated Deposit Yield. The formula is below:

$$ME_t = ME_{t-1} \times \text{Deposit Yield} \quad (7)$$

$ME_t$  : Deposit index value on day t (TL, USD, EURO)

### 3.11. BIST-KYD 1 Month Profit Share Indices Formula

The median value of Turkish Lira, US Dollar and Euro 1 month gross "Profit Sharing Rates" announced on the Participation Banks Association of Türkiye (TKBB) website are multiplied by 30/365; and using this monthly yield, Profit Share yield is calculated on the basis of the following formula:

$$\text{Profit Share Yield} = (1 + \text{Monthly Yield})^{g/30} \quad (8)$$

g: days between t business day and t+1 business day

Today's index value is calculated by increasing the previous day's index value by calculating Profit Share Yield. The formula is below:

$$KPE_t = KPE_{t-1} \times \text{Profit Share Yield} \quad (9)$$

$KPE_t$  : Profit Share index value on day t (TL, USD, EURO)

### 3.12. BIST-KYD Fund Indices

BIST-KYD Fund Indices is calculated on the basis of the following formula:

$$\text{Index}_t = \text{Index}_{t-1} \times \left(1 + \frac{\sum_{i=1}^n r_{i,t}}{n}\right) \quad (10)$$

$\text{Index}_t$  : Index value on day t

n : Number of fund in indices

$r_{i,t}$  : Unit share price return of fund i on day t

### 3.13. BIST-KYD Indices Calculation and Publication Intervals

INDEX GROUP	CALCULATION AND PUBLICATION INTERVAL
BIST-KYD GDS Indices (T+0 and T+1)	Every 10 seconds during its market trading hours
BIST-KYD CPI Indexed Government Bond Indices (T+0 and T+1)	Every 10 seconds during its market trading hours
BIST-KYD Corporate Bond Indices (T+0 and T+1)	Every 10 seconds during its market trading hours
BIST-KYD Government Eurobond Indices	End of day
BIST-KYD Corporate Eurobond Indices	End of day
BIST-KYD Lease Certificates Indices (T+0 and T+1)	Every 10 seconds during its market trading hours
BIST-KYD CPI Government Lease Certificates Indices (T+0 and T+1)	Every 10 seconds during its market trading hours
BIST-KYD Government Lease Certificates USD Indices	End of day
BIST-KYD Repo Indices	Every 10 seconds during its market trading hours
BIST-KYD Gold Price Indices	Every 10 seconds during 09:00 – 16:00 on business days (09:00 – 13:00 on half business days)
BIST-KYD 1 Month Deposit Indices	End of day
BIST-KYD 1 Month Profit Share Indices	End of day
BIST-KYD Fund Indices	End of day

### 3.14. BIST-KYD Indices Data Precision

Data precision of the parameters used in the index calculations is shown in the table below.

	DATA PRECISION
Index Value	Rounded to 5 decimal places
Weighting Factor	Rounded to 12 decimal places

## 4. BIST-KYD INDICES COMMITTEE

BIST-KYD Indices Committee (Committee) was established in order to make required changes in the index methodology on the basis of monitoring the calculation and the maintenance of indices; creating new indices or terminating existing ones according to market movements, needs and requests. Decisions by the Committee are taken with a majority of the votes and just for recommendations. Decisions become definite with the approval of Borsa İstanbul Management. The committee consists of 6 persons; 3 from Borsa İstanbul A.Ş. and 3 from Turkish Institutional Investment Managers' Association (KYD). The meetings of the Committee are held twice a year on the date determined by the committee members. Additional meetings can be held if needed.

## 5. CORRECTION IN INDEX VALUES

No retroactive correction is made in the index values calculated and published in real time. Retroactive correction in the index values calculated and published at the end of day can be permitted only by the decision of the Borsa İstanbul Management.

## 6. OTHER

The maintenance of BIST-KYD indices is provided by Borsa İstanbul Index Department. In case of the absence of any constituent for any of indices, indices are continued with the latest recorded value. All practices about BIST-KYD Indices Methodology are established and announced by Borsa İstanbul Management with BIST-KYD Indices Committee's advice.

## 7. EFFECTIVE DATE

This Methodology takes effect on ~~24.02.2023. .../..~~ December 25, 2023. The current version of the Methodology should be confirmed on the Borsa İstanbul corporate website ([www.borsaistanbul.com](http://www.borsaistanbul.com)), Indices - Methodologies and Changes page.

## 8. APPENDIX

Explanations of the terms and definitions used in this Methodology are included in the table in Annex 1.

### Annex 1-Terms and Definitions Used in Methodology

Terms and Definitions	Explanations
Turkish Government Debt Securities (GDS)	These debt securities are issued in the domestic market by the Ministry of Treasury and Finance of Türkiye.
Corporate Debt Instruments	These debt instruments are issued by privately held companies.
CPI Indexed Government Bonds	These government bonds are Consumer Price Index (CPI) indexed fixed rate coupon bonds that guarantee the fixed rate determined by the Ministry of Treasury and Finance.
Lease Certificates	These debt securities refer to the securities issued by the asset leasing companies in order to provide financing of all kinds of assets and rights and ensures that its owners have rights in proportion to their shares of the income obtained from this asset or right.
Floating Rate Debt Instrument	A debt instrument that pays interest based on a variable reference rate.
Zero Coupon Debt Instrument	A debt instrument that is sold at a discounted price on the date of issue and does not have any coupon payments throughout its maturity, and makes principal payment on the maturity date.
Repo	Repo refers to the sale of a security with the promise of repurchase at the start value date and the repurchase of the security at the end value date.
Reverse Repo	Reverse repo refers to the purchase of a security with the promise of reselling at the start value date and the sale of the security at the end value date.
Dated Date	It refers to the date on which interest begins to accrue on a fixed income security.
Value Date	It refers to the settlement date of the transactions
Maturity	Maturity refers to a finite period at the end of which the instrument will no longer exist and the principal is repaid with interest.
Redemption	Redemption is the repayment of the principal and accrued interest on the maturity date specified at the time of issuance of the security.
Accrued Interest	It refers to the amount of interest that accrues on a bond between the last coupon date and the index date.
Clean Price	It refers to the price that does not include the accrued interest of the security.
Dirty Price	It refers to the price of the security, including accrued interest.
Settlement price	Settlement price is the price that is used in calculating the settlement amount of a trade.
Yield to Maturity	The internal rate of return of a bond assuming it is held to maturity.
Macaulay Duration	A measure of the weighted average time to maturity for an investor to receive the present value cash flows from a bond.

Default	Default is the failure to pay coupon or principal payment of a debt security at payment date on bond amortization schedule.
Day Count Convention	The calendar conventions used to calculate accrued interest or other cash flow analytics for a given security.
TLREF	It refers to Turkish Lira Overnight Reference Rate.
BIST TLREF Index	It refers to the Index which is calculated to follow the return of the TLREF.



