1. Description of the index

1.1 Official Hungarian name of the index:
Rövid Futamidejű Zérókupon Magyar Állampapír Index

1.2 Official English name of the index:
Hungarian Government Short Term Zero-Coupon Index

1.3 Official abbreviation of the index:
ZMAX

1.4 Basis of the index:
100.0000 points on December 31. 1996 (trading day)

1.5 Frequency of calculation and publication of the index:
The index is calculated once each trading day during the daily trading hours of government securities. The daily index value is rounded to four decimal points and published in HUF on Reuters' HUBONDINDEX1 and .HUMAXZERO pages after 2 pm CET every day.

1.6 Formula of the index:

$$index_t = index_{t-1} \frac{\sum_i w_{t-1,i}\left[mid_{t,i} + intacc_{t+2,i} + intpay_{t+2,i}\right]}{\sum_i w_{t-1,i}\left[mid_{t-1,i} + intacc_{t+1,i}\right]}$$

where

Government Security stands for either a Government Bond or a Treasury Bill.

where

$mid_{t,i}$ is the arithmetical average, rounded to 4 decimals, of the best bid and offer price of Government Security 'i' on trading day 't' with payment on trading day 't+2' based on primary dealers' two-way secondary market price quotation, which is published by the Government Debt Management Agency.

$intacc_{t+2,i}$ is the interest accrued on Government Security 'i' until the trading day 't+2', rounded to 4 decimals.

$intpay_{t+2,i}$ is the interest payment for Government Security 'i' on trading day 't+2'.

$w_{t-1,i}$ is the weight of the Government Security 'i' in the index basket on the 't-1' trading day.

theoretical yield curve: this curve is a zero-coupon curve made on the basis of secondary market quotes for t+2 using cubic spline interpolation.

2. Objective of the index

The successful introduction of MAX Index family encouraged the elaboration of another index supplementing the Government Bond Index. The lower end of the yield curve has not been covered by primary dealers quotation (less than 91 days) in the secondary market. Therefore there has been a strong demand to introduce an index, which is able to measure the performance of those securities, which have a time to maturity less than 3 months.

These aspects were taken into consideration when the ZMAX Index was designed that contains Government Bonds and Discount Treasury Bills with residual maturity less than six months. The calculation method of the index which was applied is the same as for MAX Index, i.e. the total return index concept laid down by the European Federation of Analysts' Societies (EFFAS) Commission on Bonds. Regarding the ZMAX index portfolio revision the same principles were used as for MAX Index, as to make the portfolio a reliable benchmark for institutional and private investors against which they can measure the performance of their own portfolios. A key consideration was to reduce the number of basket revisions. In relation to ZMAX Index the number of revisions cannot exceed four occasions in each month. Each of the revisions happens after the weekly Discount Treasury Bill auctions.

A characteristic feature of the total return index is that it uses gross prices (clean price + accrued interest) so the accrued interest is continuously increasing the index value. For Discount Treasury Bills the accrued interest is contained in the price and accrues until redemption. All coupons paid by the issuer for the constituent Government Bonds in the index are automatically reinvested in the index, proportionally to the weights of the constituent Government Securities in the index. If a Government Security is excluded from the index, the market value of that security shall be reinvested according to the actual index composition.

As the index is calculated by using the so called chain-link method, i.e. of today's index value is defined as the previous day index value multiplied by the weighted percentage change in gross prices of the actual constituents relative to the previous day. The changes in the constituents should not cause the index calculations to jump or to get distorted.

The ZMAX Index differs from the MAX Index family in composition and pricing. The composition of the ZMAX index and the RMAX index partially overlaps, because the RMAX index contains all those securities which have a time to maturity between 91 days and 182 days. The pricing of the ZMAX index is based upon the zero-coupon yield curve derived from those securities' secondary market quotes which belongs to the MAX index family.

3. General principles

3.1 Composition of the index basket

A Government Security shall be added to the index basket if it meets the following criteria:

• it is a fixed rate Hungarian Government Bond or Discount Treasury Bill that has been issued publicly,
• its time to maturity is between 14 days and 182 days when it is added to the index.

3.2 Weighting of Government Security included in the index basket

Government Securities are represented in the index basket with their face values accepted at auctions. The sum of these amounts constitutes the total nominal value of the index basket. The weight of individual Government Bonds or Discount Treasury Bills in the index basket is determined by the relationship of their face value accepted at auctions to the nominal value of the whole index basket.

The weights of constituent Government Securities are revised once a week, on Wednesday if it is a workday, otherwise on the next trading day.

If a constituent Government Bond or Discount Treasury Bill is being issued or bought back through a publicly announced auction or reverse auction than its weight is changed at the nearest revision date of the index basket which could happen on the payment date of the auction or on the next revision date.

3.3 Reinvestment of coupons paid

The coupons paid by the issuer for a constituent Government Bonds are reinvested in Government Securities included in the actual index basket on the interest payment date in proportion to the weights of the individual securities.

3.4 Revise of the index basket composition

3.4.1 Inclusion

In that case when the Government Debt Management Agency Ltd. issues a Discount Treasury Bill or Government Bond that has not existed before and meets all the requirements for the inclusion into the index basket, the Discount Treasury Bill or Government Bond will be added to the basket on the next Wednesday (or if it is a holiday on the next trading day) following the auction. If on that day the Hungarian State Treasury Government Debt Management Agency Ltd. does not disseminate price information for the given Discount Treasury Bill then the Discount Treasury Bill shall be included into the index on the next revision day connected with Discount Treasury Bill auction.

3.4.2 Exclusion

In that case when the residual maturity of a constituent Discount Treasury Bill comes to maturity in less than 14 days, then it is excluded from the index basket at its current price value on the next Monday (or if it is a holiday on the next trading day). If the residual maturity of a constituent Government Bonds comes to maturity less than 14 days, then they shall be excluded from the index basket on the next Discount Treasury Bill exclusion day. If the exclusion day is holiday then the securities are excluded on the next trading day.

In line with the index calculation method, the current price value of the bonds and Discount Treasury Bills which are excluded should be reflected into the index constituents in proportion to their weights on the day of exclusion.

If the Government Debt Management Agency Ltd. buys back an index constituent bond or bill through a publicly announced reverse auction then on the next index basket revision day the weight of the given bond in the index basket shall be reduced by the amount accepted at the reverse auction.

3.5 Treatment of extraordinary events

3.5.1 Interest payments which are due on holidays

If the interest payment of a constituent Government Bond falls on a holiday, the amount of interest will not be paid or reinvested until the next working day. For index calculation purposes, the coupon payment shall be included into the index two trading days before the actual payment date i.e. on the ex-coupon date.

3.5.2 Lack of price quotation for a security

In that case when the Primary Dealers temporarily suspend price quotation for a constituent security, or incorrect price information is disseminated for technical reasons, the last correct clean price should be used for calculating the index for only 5 consecutive trading days.

In that case when the Primary Dealers' price quotations or the dissemination of correct price information of the security is not restored within 5 trading days from the date of suspension of the security then it must be temporarily excluded from the basket at its actual price value on the fifth trading day.

If Primary Dealers' price quotations or the dissemination of correct price information of the security is temporarily excluded from the basket return, the security must be reinstated at its current price value in the index basket with the same value date.

In accordance with the index calculation method, the current price value of government papers being temporarily excluded from the index basket is reinvested in constituent bonds according to their weights on the day of exclusion.