Banking Regulation & Policy Department

Bangladesh Bank
Head Office
Dhaka.

BRPD Circular No. 15

Date: 31 October, 2005 / 16 Kartik, 1412

Chief Executives
All Scheduled Banks in Bangladesh

Dear Sir,

Marking to Market based Revaluation of Treasury Bills & Bonds held by the Banks.

The requirement of revaluation of investments in shares and securities by a banking company at the year-end is stipulated in the note no. 4(kha) of the first schedule of section 38 of the Bank Companies Act, 1991. With a view to wider application of fair value accounting of Government Securities and encouraging secondary trading after issuance of these securities, it has been decided to make the following changes in the stipulation:

a) The securities, which are held for the fulfilment of Statutory Liquidity Requirement (SLR) by a banking company, will be treated as Held to Maturity (HTM) or Investment Securities and the obligation of year-end revaluation of these securities will remain unchanged. The gain/loss due to the revaluation will be taken to Capital Account and disclosed in the 'Statement of Changes in Capital'.

b) The Government treasury bills and bonds held in excess of SLR by a banking company will be treated as Held For Trading (HFT) based Dealing Securities. The portion of the Dealing Securities should be revalued at least at weekly intervals based on marking to market or at current market prices. The banking company will show the gain/loss due to this revaluation in the Profit and Loss Account of the concerned period.

   For this revaluation, the most recent yield rate prevailing in the secondary (i.e. after issuance) trading of Government Securities and bonds of different tenors is to be used and in the absence of secondary trading the yield rate of the most recent auction (Primary issue) by Bangladesh Bank is to be used. Some indicative guidelines for revaluation are enclosed herewith.

c) In accordance with the above instructions the weekly revaluation based on marking to market for the portion of securities held for trading by the banks will be compulsory from 01 February 2006; prior to the stated date, banks are advised to start this process as early as possible to ensure proper introduction of the new system mentioned above.

Yours faithfully,
sd/-
(Naba Gopal Banik)
General Manager
Phone: 7117825

Enclo: As described.

Annexure

Indicative guidelines for marking to market revaluation

1. Marking to market is the process of reflecting the fair value[1] of any asset or liability in the books. Fair Value for the purpose of periodical valuation of investments included in the HFT category would be the market price prevailing on the date of valuation as available from secondary market trades.
2. In case secondary market prices are not available, fair value will be estimated by discounting future cash flows using the YTM yield curve announced by Bangladesh Bank.
3. Treasury Bills of less than one year remaining maturity should be valued as below.

I. Treasury Bills

(i) Maturity of Less than One Year

$$\text{Price} = \frac{100}{\left(1+ \frac{\text{Yield* No. of days to maturity}}{364}\right)}$$

The yield to be used will be that prevailing in the secondary market. Where secondary market yield data is unavailable due to absence of secondary trade, yield in the most recent primary auction by Bangladesh Bank is to be used. Usually the secondary market yields (or those in primary auctions by BB) will be available for specified tenors like 28, 91, 182 or 364 days. The remaining maturity of most Treasury Bills held by banks for trading will be different from these tenors. In such cases, the exact yield applicable will have to be intrapolated/extrapolated from the yield curve from most recent secondary trade/primary auction as available.

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[1] Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction.

(ii) Maturity of More than One Year

Treasury Bills of Maturity more than one year are to be valued exactly like zero coupon bonds. This is done as below:

$$\text{Price} = 100 / (1 + Z_t)^{\wedge t}$$

Where

Z_t is the annual "zero coupon rate" applicable to the time to maturity and

t is the time to maturity in years

It is assumed that the "zero coupon rate" is available in secondary market trades. Otherwise, a reasonable approximation is to use the YTM applicable to the period, in place of the "zero coupon rate".

Usually the secondary market yields (or those in primary auctions by BB) will be available for round periods like 1,2,3,5,10 years. The remaining period to maturity of securities, on the date of valuation, will often not be in round periods. In such cases, the exact yield applicable will have to be intrapolated from the yield curve from most recent secondary trade/primary auction as available.

Example 2.1

Date of Maturity of security – October 15, 2008

Date of Valuation – December 31, 2005

2 year Yield – 6.50%

3 year Yield – 6.70%

Step 1 – Calculate remaining maturity

Oct 15, 2008 - Dec 31, 2005 = 2.79 years[2]

Step 2 – Find the exact yield applicable to 2.79 years

$$6.50\% + \left(\frac{6.70\% - 6.50\%}{(3-2)} \right) \times 0.79 = 6.66\%$$

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[2] The EXCEL function YEARFRAC(StartDate,EndDate,Basis) may also be used

I. Coupon Paying Bonds

A coupon paying bond is valued as follows

$P = CF_1/(1+ Y/2)^{\wedge 1} + CF_2/(1+ Y/2)^{\wedge 2} + CF_3/(1+ Y/2)^{\wedge 3} + \ldots\ldots\ldots + CF_n/(1+ Y/2)^{\wedge n}$

Where

P = Price of the bond

Y = Yield to Maturity

CF_i - Cash Flow at time i

1,2,3……n = Time to cash flow in Half-Years

The yield to be used will be that prevailing in the secondary market. In case yield is not available in the secondary market, the yield as announced by Bangladesh Bank is to be used.

Usually the secondary market yields (or those in primary auctions by BB) will be available for round periods like 1,2,3,5, 10 years. The remaining maturity, on the date of valuation, of most bonds will not be in such round periods. In such cases, the exact yield applicable will have to be intrapolated from the yield curve from most recent secondary trade/primary auction as available .

Although the above formula is simple and conceptually transparent, it is applicable when the price is to be determined at the beginning of a coupon period. Very often, a security requires to be valued in between coupon dates. In such a case the following formula may be used.

$$\text{Price} = \left[\frac{\text{Redemption Value}}{\left(1+\frac{yield}{frequency}\right)^{\left(N-1+\frac{DSC}{E}\right)}}\right] + \left[\sum_{K=1}^{N}\frac{100\times\frac{rate}{frequency}}{\left(1+\frac{yield}{frequency}\right)^{\left(K-1+\frac{DSC}{E}\right)}}\right] - \left[100\times\frac{Rate}{Frequency}\times\frac{A}{E}\right]$$

where:

DSC = number of days from settlement to next coupon date.

E = number of days in coupon period in which the settlement date falls.

N = number of coupons payable between settlement date and redemption date.

A = number of days from beginning of coupon period to settlement date.

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The first term within brackets on the Right Hand Side of the equation calculates present value of principal, the second term calculates present value of coupon flows and the third and last term calculates the accrued interest. By subtracting the accrued interest from the present value of all cash flows, the clean price of the bond is arrived at.

Example 2.2

Face Value – 100

Date of Maturity – October 15, 2015

Coupon Dates – October 15 and April 15

Date of Valuation – December 31, 2005

9 year Yield – 9.50%

10 year Yield – 9.80%

Coupon - 8.50%

Step 1 – Find the exact years to maturity on date of valuation – 9.79 years

Step 2- Interpolating between 9 and 10 year yields, find the yield applicable to 9.79 years – 9.74%.

Step 3 – Find the value of the bond using 9.74% YTM (use spreadsheet or any utility) – 92.44