## Chapter 10: The money market

# Textbook Questions

### Review questions

*The following questions appear in the textbook on page 310.*

*Answer the following questions.*

**You are the head of the money market desk in Bank ABC and have to prepare a TB tender on behalf of your bank. You are given the following information:**

**Yield required: 91-day bills: 7,2% p.a.; 182-day bills: 7,5% p.a.**

**Amount to tender: R60 million; R50 million**

* 1. **Calculate the discount rate and tender price for each maturity.**
  2. **Assume both Bank ABC’s bids are accepted. Calculate the consideration for each maturity.**

1. **91-day bills**

**If the yield required is 7,2% p.a., then it first has to be converted into a discount rate as follows: id = iy/(1 + iy × n) = 0,072/(1 + 0,072 × 91/365) = 0,07073 or 7,073%**

**Tender price = p = 1 – (id x n) = 1 – (0,07073 × 91/365) = 0,98237 or R98,237 but your bank must submit a price of R98,235% (the third decimal must be 0 or 5).**

**182-day bills**

**id = iy/(1 + iy × n) = 0,075/(1 + 0,075 × 91/365) = 0,07362 or 7,362%**

**Tender price = p = 1 – (id × n) = 1 – (0,07362 × 91/365) = 0,98165 or R98,165. Your bank can therefore submit a price of R98,165%.**

1. **Since the price is already known, the consideration is obtained by simply multiplying the price with the tender amount:**

* **91-day bills consideration = 98,235/100 × R60 000 000 = R58 941 000,00**
* **182-day bills consideration = 98,165/100 × R50 000 000 = R49 082 500,00**

1. **Why does the SARB issue debentures and what effect does their issue and redemption respectively have on liquidity in the money market?**
2. **Suppose a bank is successful in its bid for R35 million in an RBD auction held on 25 September maturing on 23 October of the same year, at 6,4% p.a. Calculate the amount the bank will receive at maturity.**
3. **The SARB issues debentures to manage liquidity in the money market. Issuing debentures reduces money market liquidity while the redemption of debentures by the central bank injects liquidity back into the banking system.**
4. **Maturity value of RBD: MV = 35 000 000 × (1+ 0,064 × 28/365)**

**= R35 171 835,62**

**What gave rise to the decline in the use of BAs by corporate institutions as a means of short-term funding over the past few decades?**

**BAs lost their liquid asset status in 1993, causing a sharp decline in volume. Losing this status implied that BAs no longer qualified as a prescribed liquid asset in which banks had to invest a certain proportion of their deposit liabilities (under the Banks Act), nor were they allowed as collateral assets when borrowing from the SARB. Banks subsequently became less eager to promote BA business with their large clients. Another reason is that borrowers have switched to other forms of short-term financing such as tailor-made short-term loans or by issuing their own commercial paper. The BA market finally came to an end in September 2013.**

**A R10 million NCD is issued by Smartbank to Tendele Investments for 91 days on 1 June at 7,5% p.a. On 3 July when the market rate has fallen to 7,1% p.a., Tendele’s treasurer decides to get their cash back by selling it to Rainbow Asset Managers. Rainbow holds on to the NCD until 5 August and then sells it into the market at the ruling rate of 7,3%. Determine the following:**

1. **The maturity value of the NCD.**
2. **The secondary market proceeds on 1 July.**
3. **The yield earned by Rainbow over its holding period.**
4. **(Note maturity date = 1 June + 91 days = 31 August)**

**MV = 10 000 000 × (1+ 0,075 × 91/365)**

**= R10 186 986,30**

1. **(Remaining days = 59)**

**Proceeds: P = MV/(1 + i × n)**

**= 10 186 986,30/(1 + 0,071 × 59/365)**

**= R10 071 399,75 (received by Tendele from Rainbow)**

1. **Rainbow has held it for 33 days, which means there are now only (59 – 33) = 26 days left to maturity. Therefore the holding period return is calculated as:**

**AHPY =  where**

**i1 = market yield on date of purchase**

**i2 = market yield on date of sale**

**n1 = (number of days from purchase date to maturity)/365**

**n2 = (number of days from date of sale to maturity)/365**

**nh = (days held)/365**

**Thus, the annual holding period yield:**

**AHPY = **

**= 0,0691 or 6,91% p.a.**

**Bonds with a nominal value of R15 million are sold by Bank A to Bank B on 1 December at an all-in market price of R97,67450% and Bank A undertakes to repurchase them on 30 December of the same year and pay Bank B an interest rate (the repo or carry rate) of 7,4%. Calculate the amount payable by Bank A to Bank B on 30 December.**

**Market value of bond = nominal value of bonds × (AIP of bond)**

**Market value of bonds = 15 000 000 × 97,67450/100 = R14 651 175**

**Repurchase consideration = 14 651 175 × (1 + 0,074 × 29/365)**

**= R14 737 315,88 = amount payable by Bank A to Bank B**

**Discuss the various benefits and uses of repos.**

**Repos are more flexible than other money market instruments such as NCDs or commercial paper because their maturities can vary from one day to six months or more. A great advantage of repos in general is that the cash lender in a (reverse) repo gets double security because if the borrower defaults the lender already has ownership of the collateral (the bonds), which he will simply retain. That means that he only loses money if both the repo counterparty *and* the bond issuer fail.**

**Repos have many applications. The main driving force behind repos is either the need to borrow/lend cash, or to borrow specific securities.**

**In cash-driven deals, financial institutions such as banks could create repos for one of the following reasons:**

* **Selling securities in an existing portfolio to obtain funding for monetary policy purposes**
* **Using repos to fund a bond portfolio**
* **Enhancing returns on an existing portfolio of bonds**
* **Buying securities to earn a return on surplus cash**

**In bond-driven deals repos are normally created by banks in order to buy securities for the purpose of obtaining liquid assets or alternatively, financial institutions can use them to facilitate the short selling of securities such as bonds.**

**What is the purpose of issuing Land Bank bills?**

**Land Bank bills (LBBs) are issued for the purpose of extending short-term financing to agricultural cooperatives or other special farmers' cooperatives formed under the Cooperatives Act 91 of 1981. The cooperatives in turn use the funds to purchase agricultural products from farmers, as well as agricultural implements, equipment and other means of production from manufacturers and suppliers. The equipment is used by the farming community for the production of agricultural products.**

**Why would a company that borrows short-term funds by issuing commercial paper bills be willing to make a secondary market in its own paper?**

**Making a secondary market in its own paper enhances the attraction of the security to investors. This is normally done when the paper is not listed on the JSE.**

**List the five conditions in the CP Exemption Notice under which a company can issue CP in denominations of less than R1 million.**

**CP may only be issued and transferred in denominations of R1 million or more, unless the instruments are:**

* **listed on a recognised financial exchange**
* **endorsed by a bank**
* **issued for longer than five years**
* **issued by the central government, or**
* **backed by an explicit central government guarantee.**

**Why is a call bond regarded as a security with a variable maturity date?**

**Both the issuer and the investor have the right to terminate or call the call bond after one day (or any number of days) although there is no obligation on either party to do so. This explains why call bonds are classified as having variable maturity dates.**

**How is interest paid on call bonds?**

**Interest is calculated on a daily basis using the RODI (plus a spread) as the reference rate, but it is only paid at month ends.**

**A money market fund manager is interested in buying FRNs. What would be his view on short-term interest rates over the next year?**

**The fund manager is an investor and is therefore of the opinion that short-term rates may rise over the next year – and consequently wants to benefit from such higher future rates.**

**If the trading spread (TS) on a certain issuer’s FRN widens due to deterioration in the issuer’s credit quality, what would be the effect on the price of the FRN? Explain your answer?**

**The future coupons of an FRN are always determined by using the benchmark rate plus the initial spread (IS). However, the current market price of an FRN is always calculated by discounting the future cash flows with the benchmark rate plus the trading spread (TS). If the TS and the IS are the same the FRN will always be priced at par. However, if the TS widens it implies that the FRN’s price will be calculated by discounting future cash flows with bigger discount rates, hence the current market price will be below par.**