

Discounting Negotiable Instruments

The basic principles of discounting a note or a draft are the same as those of obtaining a loan from a bank that deducts interest in advance.

Note:

When the term of a note or a draft is stated in *days*, the *exact time* is used in determining the maturity date and the period of discount. However, when the term is stated in *months*, the corresponding date in the due *month* is used in determining the maturity date, although the exact time is still used in counting the period of discount.

Discounting Negotiable Instruments - Discounting non-interest-bearing notes

Example

After D.C. Jones had accepted the draft for €3000, Bob Tafton discounted the draft at the First National Bank of Chicago on June 17. How much did Tafton receive if the draft was discounted at 15%?

Example:

A three-month, non-interest-bearing note dated on March 2, 1999 was discounted in a bank on April 3 at 12%. The proceeds were €1,470. Find the face value of the note.

Discounting Interest-Bearing Notes

Maturity Value usually not given therefore:

Step 1: Find the maturity value

Step 2: Find the proceeds

Example 3:

Charles L. Benson had a note for €500 with an interest rate of 12%. The note was dated 15th November, 1998 and the maturity date was 90 days after date (See Figure 10-1). On November 30, 1998, he took the note to this bank, which discounted it at a discount rate of 14%. How much did he receive from the bank?

Relationship between Bank Discount and Simple Discount

When the simple interest rate (i) and the bank discount rate (d) are the same, the discount computed by the bank discount method is greater than that computed by the simple discount method; that is,

when $i=d$, $I' > I$

Example 1:

Discount €1000 for 60 days at 6% by using (a) the bank discount method and (b) the simple discount method. What are the discount and the proceeds by method (a)? What are the present value and the discount by method (b)? How much is the difference the two types of discounts? Indicate which discount is larger.

Example 2:

A man who borrowed €990 paid €1000 at the end of 60 days. (a) Consider the difference as the interest deducted in advance from the maturity value, €1000. What is the bank discount rate? (b) Consider the difference as the interest added to the borrowed principal, €990. What is the simple interest rate? Which rate is larger?

Proof:

If $P = P'$, the formula $S = P(1 + in)$ may be written as:

$$S = P'(1 + in); \text{ but also } S = P'(1 - dn)$$

Thus, $P'(1 + in) = P'(1 - dn)$; divide both sides by

$$P': (1 + in) = 1/(1 - dn)$$

Subtract 1 from both sides and simplify as below:

$$in = \frac{1}{1 - dn} - 1 = \frac{1 - (1 - dn)}{1 - dn} = \frac{dn}{1 - dn}$$

$$\text{Divide both sides by } n : i = \frac{dn}{1 - dn}$$

Example 3:

A bank discounts a 75-day note at 9%. What is the equivalent simple interest rate earned by the bank?

Proof (cont.)

Multiply both sides of the previous formula by $(1 - dn)$, then

$$i(1 - dn) = d, \text{ and}$$

$$i - idn = d. \text{ Add } idn \text{ to both sides:}$$

$$i = d + idn = d(1 + in)$$

$$\text{Divide both sides by } 1 + in : d = \frac{i}{1 + in}$$

Example 4:

At what rate should a bank discount a 60-day note if the bank is to earn simple interest equivalent to 8%?