Present Value and Discount

COURSE TEACHING ASSISTANTS

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Rules

Given		Keywords in the question
M_v	maturity value	*maturity value, face value*
t	time in years: days/360 or months/12	*before its maturity date by …*

Step	Rule	Keywords in the question
Discount	$M_v \times r_{\text{discount}} \times t$	*bank discount rate*
Commission	$M_v \times \dfrac{r_{\text{commission}}}{1000}$	*commission*
Collection fees	$M_v \times \dfrac{r_{\text{collection}}}{1000}$ never below the bank's minimum	*collection fees, at a minimum*
Agio	Discount + Commission + Collection	*Agio*
Present value	$P_v = M_v - \text{Agio}$	*present value, receives, gets*
Real discount rate	$r^* = \dfrac{\text{Agio}}{M_v \times t} \times 100$ always higher than r_{discount}, it includes all fees	*real discount rate*

Note. ‰ means per thousand: divide by 1000.

Q1

Azza discounted a note of maturity value $20,000, 54 days before its maturity date, at a bank discount rate of 14%, collection fees 0.5 ‰ at a minimum of $5 and commission 2 ‰. Compute:

a) Agio

b) Present value

c) Real discount rate

Q2

A note of maturity value \$5,000 was discounted 2 months before its maturity date at a bank discount rate of 15%, collection fees 1 ‰ at a minimum of \$10 and commission 2 ‰. Compute:

a) Agio

b) Present value

c) Real discount rate

Q3

A note was discounted 58 days before its maturity date at a bank discount rate of 13%, collection fees 1 ‰ and commission 2 ‰. Knowing that the maturity value is $10,000, compute:

a) Agio

b) Present value

c) Real discount rate

Q4 Extra

On 12/4/2023 Omar discounted a note of maturity value \$36,000 due on 30/6/2023, at a bank discount rate of 12%, commission 2 ‰ and collection fees 1 ‰ at a minimum of \$50. Compute:

a) Agio

b) Present value

c) Real discount rate

Q5 Extra

Mona submitted two notes to a bank for discount at a bank discount rate of 15%, commission 3 ‰ and collection fees 1 ‰ at a minimum of $4 per note:

1. A note of $2,400 that matures in 3 months.
2. A note of $6,000 that matures in 4 months.

Compute the Agio, the present value and the real discount rate of each note, then the total Agio and the total present value.

Q6 Extra

Ali discounted a note of maturity value $8,000, 90 days before its maturity date, and received $7,740. Find the Agio and the real discount rate.