

APPLIED FINANCE

Lecture 11



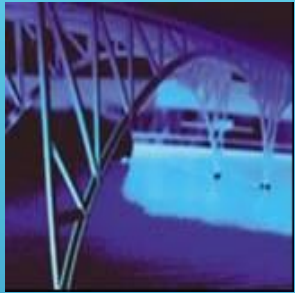


SOLVING THE PERIOD PROBLEM

Inputs	12	-1,000	0	+2,000	
	N	I/Y	PV	PMT	FV
Compute	6.12 years				

The result indicates that a **\$1,000** investment that earns **12%** annually will double to **\$2,000** in **6.12 years**.

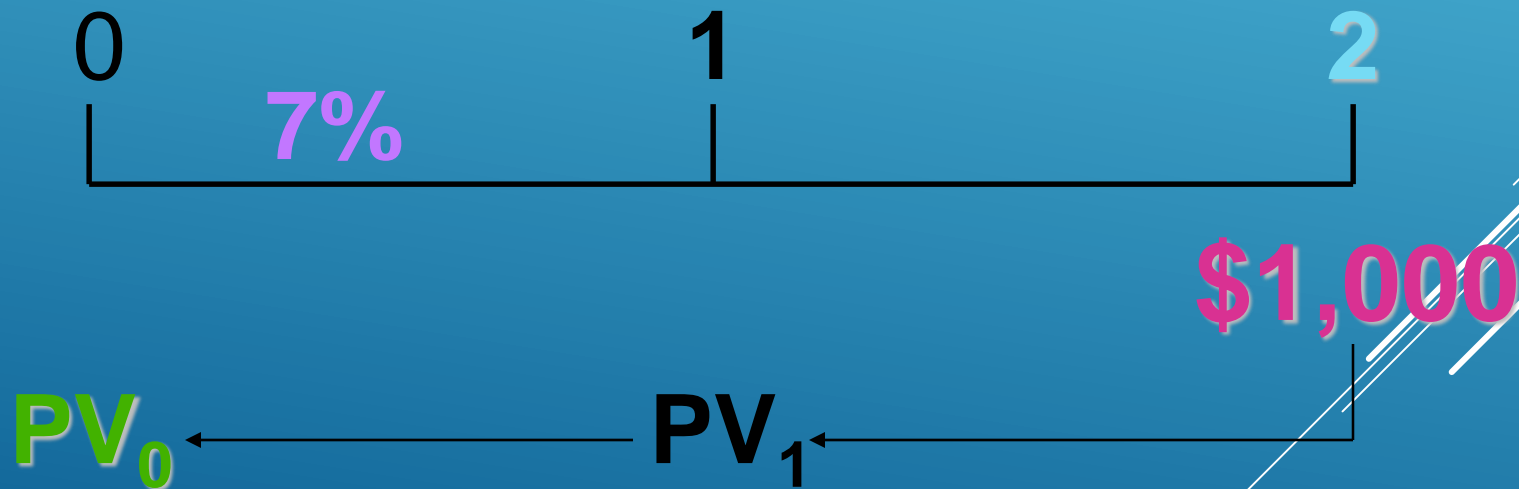
Note: $72/12\% = \text{approx. } 6 \text{ years}$



PRESENT VALUE DEPOSIT (GRAPHIC)

SINGLE

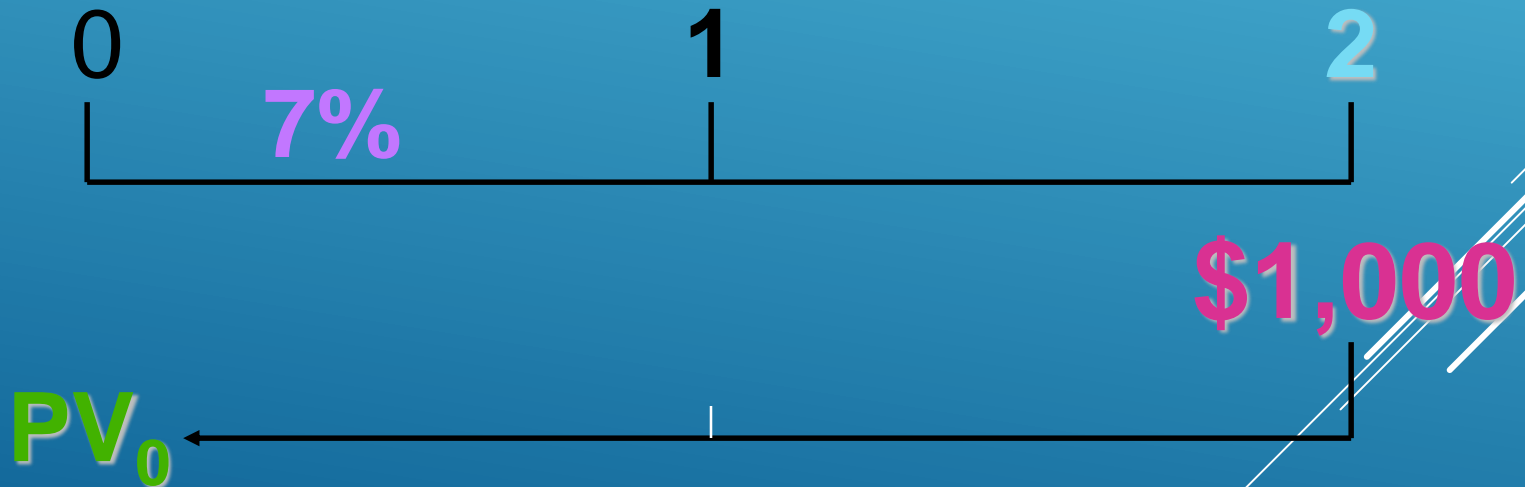
Assume that you need **\$1,000** in 2 years.
Let's examine the process to determine how much you need to deposit today at a discount rate of **7%** compounded annually.





PRESENT VALUE SINGLE DEPOSIT (FORMULA)

$$PV_0 = FV_2 / (1+i)^2 = \$1,000 / (1.07)^2 = FV_2 / (1+i)^2 = \$873.44$$





GENERAL PRESENT VALUE FORMULA

$$PV_0 = FV_1 / (1+i)^1$$

$$PV_0 = FV_2 / (1+i)^2 \text{ etc.}$$

General Present Value Formula:

$$PV_0 = FV_n / (1+i)^n$$

or $PV_0 = FV_n (PVIF_{i,n})$ -- See Table II

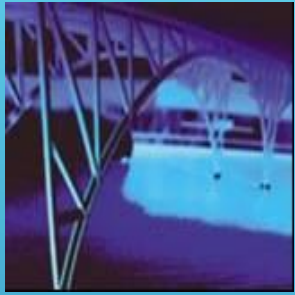


VALUATION USING TABLE II

PVIF_{i,n} is found on Table II

at the end of the book.

Period	6%	7%	8%
1	.943	.935	.926
2	.890	.873	.857
3	.840	.816	.794
4	.792	.763	.735
5	.747	.713	.681



USING PRESENT VALUE TABLES

$$PV_2 = \$1,000 (PVIF_{7\%,2})$$

Period = \$1,000 (6% 7% 8%)

1 = \$943 [Due to Rounding] .935 .926

2	.890	.873	.857
3	.840	.816	.794
4	.792	.763	.735
5	.747	.713	.681



SOLVING THE PV PROBLEM

Inputs	2	7		0	+1,000
	N	I/Y	PV	PMT	FV
Compute			-873.44		

N: 2 Periods (enter as 2)

I/Y: 7% interest rate per period (enter as 7 NOT .07)

PV: Compute (Resulting answer is negative “deposit”)

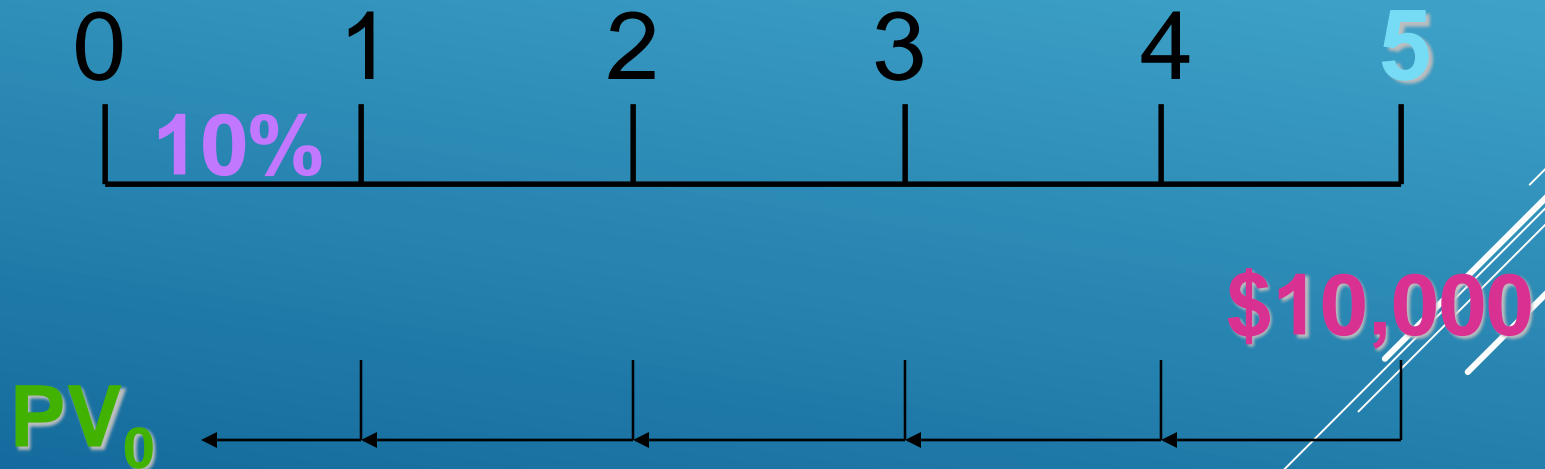
PMT: Not relevant in this situation (enter as 0)

FV: \$1,000 (enter as positive as you “receive \$”)



STORY PROBLEM EXAMPLE

Julie Miller wants to know how large of a deposit to make so that the money will grow to **\$10,000** in **5 years** at a discount rate of **10%**.





STORY PROBLEM SOLUTION

- ▶ Calculation based on general formula:

$$PV_0 = FV_n / (1+i)^n$$
$$\$10,000 / (1 + 0.10)^5 = \$6,209.21$$

- ▶ Calculation based on Table I:

$$= \$10,000 (PVIF_{10\%, 5}) = \$10,000$$
$$(.621) = \$6,210.00$$

Rounding [Due to PV_0]