



MODULE 5

Basic Long-Term Financial Concepts

INTRODUCTION

What is compound interest? In this chapter, the nature of compound interest, the basic formulas used, and their applications in common financial transactions will be explained.

The Concept of Interest

The most basic finance-related formula is the computation of interest. It is computed as follows:

$$\text{Equation 5.1. } I = P \times R \times T$$

where:

I = Interest

P = Principal

R = Interest rate

T = Time period

Compound Interest

The usual assumption in most business transactions is to use compound interest. Compound interest is simply earning interest on interest. This means that the basis for the computation of the applicable interest for a certain period is not only the original principal, but also any interest earned in the previous period assuming all cash flows would be paid or received in a lump sum upon maturity.

Present Value of Money

To make cash flows comparable, we either determine their future value at a common future date or compute their present value today.

$$\text{Present Value} = \frac{\text{Future value}}{(1 + R)^T}$$

Multiple Cash Flows

Getting their present values becomes more imperative in order to make an appropriate decision. You would simply have to get the present values of the individual cash flows and add them together. Since the present values refer to the same date (today), these are value-additive.

Step 1:
Draw a timeline.



Steps 2 and 3:
Compute for the individual present values and get the sum.
Total Present Value =

$$\frac{\text{₱}25,000}{(1 + R)^T} + \frac{\text{₱}25,000}{(1 + R)^{T+1}} + \frac{\text{₱}25,000}{(1 + R)^{T+2}}$$

ANNUITIES

Instead of computing the individual present values by multiplying each cash flow by the relevant present value interest factor, an easier way to multiply the cash flow stream by the present value interest factor for an annuity (PVIFA).

$$\text{Total present value} = C \times \left(\frac{1}{R} - \frac{1}{R(1+R)^T} \right)$$

$$\text{Total present value} = ₱25,000 \times \left(\frac{1}{5\%} - \frac{1}{5\%(1.05)^3} \right)$$

$$\text{Total present value} = ₱68,081.20$$

thank you

