

HM321 Engineering Economics

Fall 2024 – Lecture 11

Instructor: Dr. Ali Ahmad



Bring Calculator Always

- Always bring your calculator with you in lectures
- Without practice you will not be able to do the calculations in your exams



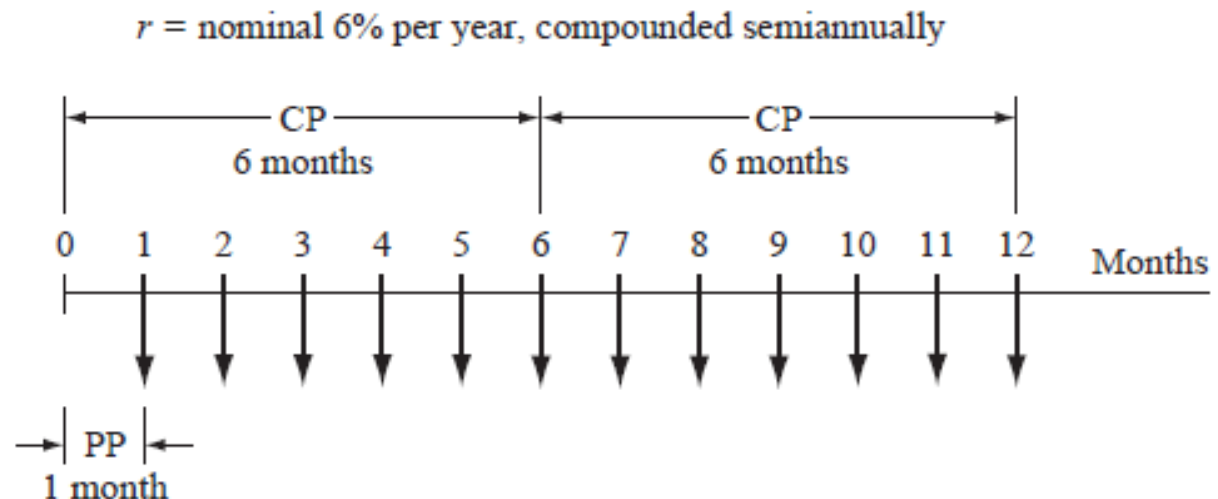
Chapter 3

NOMINAL AND EFFECTIVE INTEREST RATES

Compounding Periods (CP) and Payment Periods (PP)

- Payment period (PP): Length of time between cash flows
- Compounding period (CP): As specified in interest rate statement

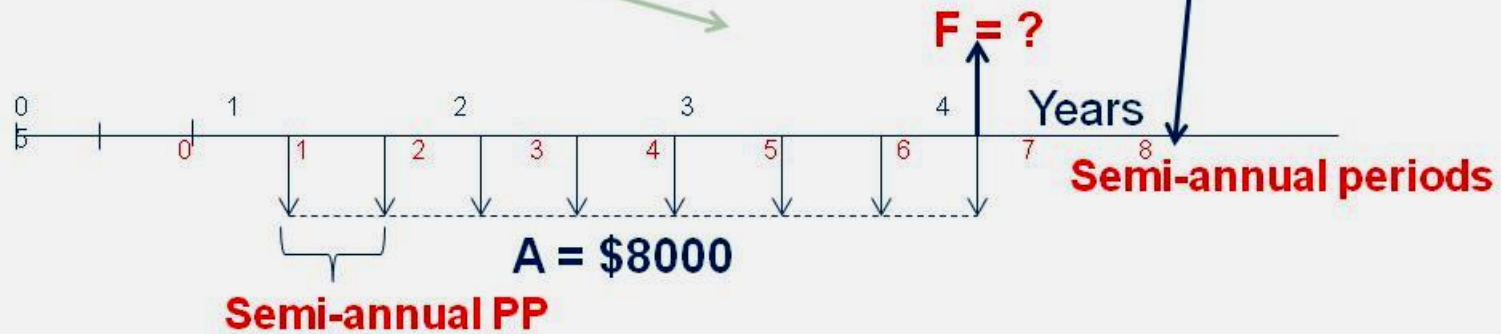
FIGURE 3.1 Cash-flow diagram for a monthly payment period (PP) and semiannual compounding period (CP).



Compounding Periods (CP) and Payment Periods (PP) - 2

Similarly, for the diagram below, the **CP is quarterly** and the payment period (PP) is semiannual

$i = 10\%$ per year, compounded quarterly

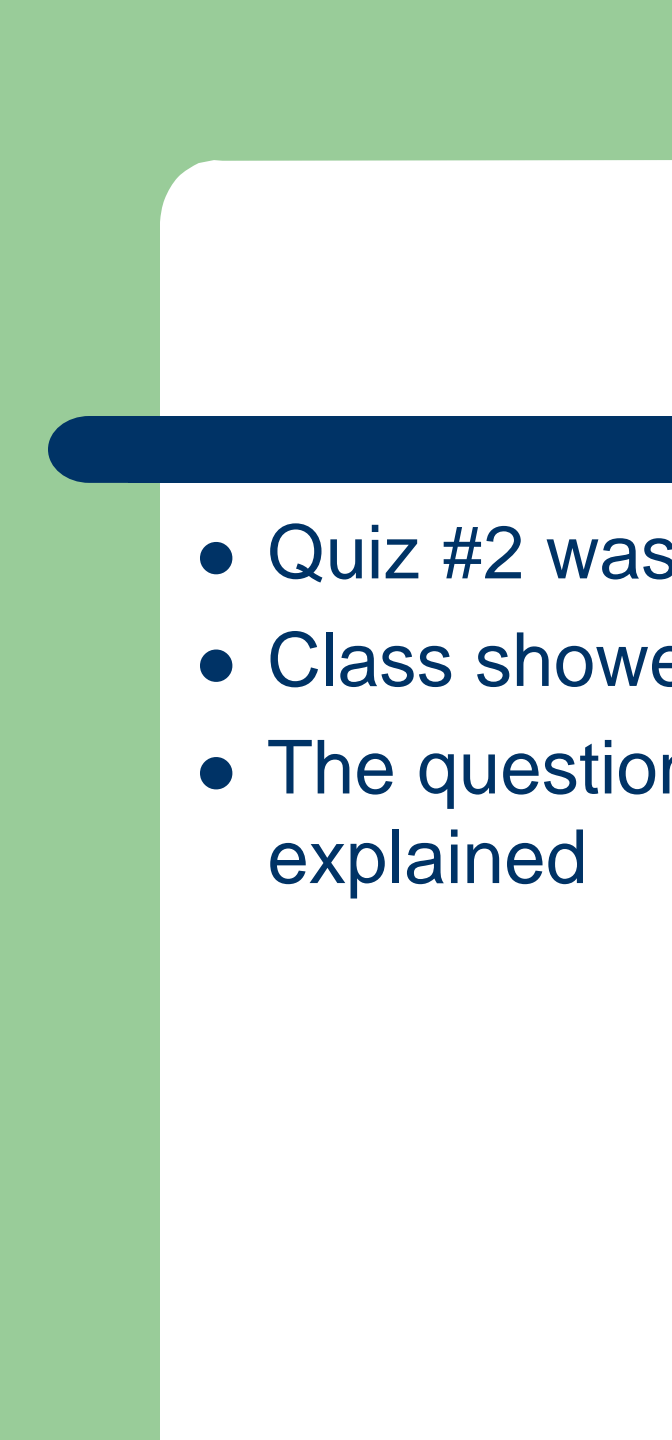



Equivalence of Single Payments when $PP > CP$

- Any consistent combination of i and n can be used to calculate F/P or P/F factors subject to the following conditions:
 - i is effective interest rate for one period (t)
 - n is number of periods between payments
($PP = n \times t$)
 - The period chosen (t) should be integer multiple of CP

Series of Payments with $PP > CP$

- Determine effective interest rate i per payment period (PP)
- Determine number of payments (n)
- Use appropriate factor P/A , A/P , etc

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- A large green shape in the top-left corner of the slide, consisting of a square and a rounded rectangle.
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- A thick, dark blue horizontal bar spanning across the slide.
- Quiz #2 was reviewed.
 - Class showed poor performance in this quiz
 - The questions in the quiz were solved and explained

Reference

- Basics of Engineering Economy by Leland Blank and Anthony Tarquin, 2nd edition, McGraw-Hill