

## 問答題

1. 單利的計算基礎僅為每期的原始本金金額；複利計算的基礎則為期初的本金金額加上先前各期累積的利息，若期間在兩期以上，則本金所產生的利息會加入本金繼續再衍生新的利息，亦即利上加利。

因此，在利率條件相同的情況下，複利計算的結果，金額會較單利計算結果為大。

2. 終值為某筆或多筆投資金額，經由複利計算後，在未來特定日所累積變成的金額。現值則是未來某筆或多筆金額，經由複利計算後，在今日折現後的金額。
3. 相等間隔時間連續支付 (或收取) 相等金額，且每期計息之利率也相同，即所謂的年金 (annuity)。由於各期金額的收付可於期初或期末為之，因此年金又區分為二類，於期末收付者，稱為普通年金 (ordinary annuity)；於期初收付者，稱為到期年金 (annuity due)。
4. 所謂遞延年金 (deferred annuities)，係指於若干期後才發生收付的年金。例如遞延 3 年之五年普通年金，意謂前三年並無金額收付的發生，而第一期的收付是發生於第四年底，且連續 5 年。
5. 債券的面額、票面利率、債券的發行的日期、付息日期、到期日與發行時之市場利率。

## 選擇題

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|--------|--------|--------|
| 1. (D) | 2. (C) | 3. (D) |
| 4. (D) | 5. (D) | 6. (B) |
| 7. (C) | 8. (B) | 9. (D) |

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|---------|---------|---------|
| 10. (C) | 11. (C) | 12. (B) |
| 13. (C) | 14. (B) | 15. (A) |
| 16. (C) | 17. (B) | 18. (C) |

### 練習題

- (1)  $\$100,000 + \$100,000 \times 4\% \times 6 = \$124,000$

(2)  $\$100,000 \times (1 + 0.04)^6 = \$100,000 \times 1.26532 = \$126,532$
- (1)  $\$60,000 \times (\text{Future Value of 1, 4 periods, 12\%})$   
 $= \$60,000 \times 1.57352 = \$94,411$

(2)  $\$60,000 \times (\text{Future Value of 1, 8 periods, 6\%})$   
 $= \$60,000 \times 1.59385 = \$95,631$

(3)  $\$60,000 \times (\text{Future Value of 1, 16 periods, 3\%})$   
 $= \$60,000 \times 1.60471 = \$96,283$
- $\$1,300,000 \times (\text{Present Value of 1, 7 periods, 8\%})$   
 $= \$1,300,000 \times 0.58349 = \$758,537$
- (1)  $\$130,000 \times (\text{Future Value of 1, 6 periods, 12\%})$   
 $= \$130,000 \times 1.97382 = \$256,597$

(2)  $\$45,000 \times (\text{Present Value of 1, 2 periods, 10\%})$   
 $= \$45,000 \times 0.82645 = \$37,190$

(3)  $\$30,000 \times (\text{Future Value of 1, 6 periods, 2\%})$   
 $= \$30,000 \times 1.12616 = \$33,785$

(4)  $\$250,000 \times (\text{Present Value of 1, 5 periods, 15\%})$   
 $= \$250,000 \times 0.49718 = \$124,295$
- $\$10,000 \times (\text{Future Value of an Ordinary Annuity, 6 periods, 5\%})$   
 $= \$10,000 \times 6.80191 = \$68,020$
- $\$14,000,000 \div (\text{Future Value of an Ordinary Annuity, 11 periods, 8\%})$   
 $= \$14,000,000 \div 16.64549 = \$841,069$

7.  $\$1,000,000 \div (\text{Future Value of an Annuity Due, 6 periods, 4\%})$   
 $= \$1,000,000 \div 6.89829 = \$144,963$
8.  $\$108,871 \times (\text{Future Value of an Annuity Due, } N \text{ periods, 10\%}) = \$840,000$   
 $(\text{Future Value of an Annuity Due, } N \text{ periods, 10\%}) = 7.71555$   
 $(\text{Future Value of an Ordinary Annuity, } N \text{ periods, 10\%}) \times 1.1 = 7.71555$   
 故  $(\text{Future Value of an Ordinary Annuity, } N \text{ periods, 10\%}) = 7.01414$   
 When  $N=5 \rightarrow 6.105100$ (不足) ; When  $N=6 \rightarrow 7.715610$   
 故花花要存 6 年方可購買價值 \$840,000 的東西，即  $N = 6$  (年)
9.  $\$500,000 \times 4\% \times (\text{Present Value of an Ordinary Annuity, 8 periods, 3\%}) + \$500,000 \times$   
 $(\text{Present Value of 1, 8 periods, 3\%})$   
 $= \$20,000 \times 7.01969 + \$500,000 \times 0.78941 = \$535,099$
10.  $\$125,000 \times (\text{Present Value of an Ordinary Annuity, 5 periods, 12\%})$   
 $\$125,000 \times 3.60478 = \$450,597$
11. 店面甲：\$50,000,000  
 店面乙：  
 租金現值： $\$7,000,000 \times (\text{Present Value of an Annuity Due, 20 periods, 15\%})$   
 $= \$7,000,000 \times 7.19823 = \underline{\underline{\$50,387,610}}$   
 店面丙：  
 租金現值 =  $\$860,000 \times (\text{Present Value of an Ordinary Annuity, 20 periods, 15\%})$   
 $= \$860,000 \times 6.25933 = \$5,383,024$   
 店面丙之淨現值 =  $\$55,000,000 - \$5,383,024 = \underline{\underline{\$49,616,976}}$   
 由於店面丙之現值最低，故哲普公司應選擇店面丙。
12.  $\$56,000 \times (\text{Present Value of an Annuity Due, 36 periods, 2\%})$   
 $= \$56,000 \times 25.99862 = \$1,455,923$
13.  $\$7,000 \times (\text{Present Value of an Annuity Due, 6 periods, 2.5\%})$   
 $= \$7,000 \times 5.64583 = \$39,521$   
 分期付款現值 \$39,521 大於現購價 \$39,000，故直接購買較划算。

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14.  $\$340,000 \times (\text{Present Value of an Annuity Due, 7 periods, 8\%})$

$$= \$340,000 \times 5.62288 = \$1,911,779$$

$$\$1,911,779 \times (\text{Present Value of an 1, 5 periods, 8\%})$$

$$= \$1,911,779 \times 0.68058 = \$1,301,119$$

$$\$1,301,119 \div (\text{Future Value of an Ordinary Annuity, 8 periods, 8\%})$$

$$= \$1,301,119 \div 10.63663 = \$122,324$$

15.  $\$70,000 \times (\text{Present Value of an Annuity Due, 10 periods, 4\%}) \times (\text{Present Value of 1, 2 periods, 8\%})$

$$= \$70,000 \times 8.43533 \times 0.85734 = \$506,236$$

$$\text{現購價} = \$150,000 + \$506,236 = \$656,236$$