

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： $\$7,000,000 \times (\text{Present Value of an Annuity Due, 20 periods, 15\%})$
 $= \$7,000,000 \times 7.19823 = \underline{\$50,387,610}$
 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 = $\$55,000,000 - \$5,383,024 = \underline{\$49,616,976}$
 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。

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. $\$70,000 \times (\text{Present Value of an Annuity Due, 10 periods, 4\%}) \times (\text{Present Value of 1, 2 periods, 8\%})$
 $= \$70,000 \times 8.43533 \times 0.85734 = \$506,236$
 現購價 = $\$150,000 + \$506,236 = \$656,236$

應用問題

1.

年度	現金流量	折現因子	現值
×2	\$579,481	0.89286	\$ 517,395
×3	588,232	0.79719	468,933
×4	517,526	0.71178	368,365
×5	522,483	0.63552	332,048
×6	498,724	0.56743	282,991
×7	483,557	0.50663	244,984
資產之使用價值			<u>\$ 2,214,716</u>

2. 方式一

$$\$450,000 \div \$100,000 = 4.5$$

查表 Future Value of an Ordinary Annuity, 4%

$$4 \text{ periods} = 4.24646 \quad ; \quad 5 \text{ periods} = 5.41632$$

第五次付款達到目標—×3年6月30日

方式二

$$\$450,000 \div \$49,500 = 9.09$$

查表 Future Value of an Ordinary Annuity, 2%
8 periods = 8.58297 ; 9 periods = 9.75463

第九次付款達到目標—×3年3月31日

應選擇方式二，可於×3年3月31日達到目標。

3. $\$500,000 \times (\text{Future Value of 1, 20 periods, 4\%})$
 $= \$500,000 \times 2.19112 = \$1,095,560$
 $\$10,000,000 - \$1,095,560 = \$8,904,440$
 $\$8,904,440 \div (\text{Future Value of an Ordinary Annuity, 10 periods, 4\%})$
 $= \$8,904,440 \div 12.00611 = \$741,659$

4. 方法一

$$\begin{aligned} & \$1,400,000 \times (\text{Future Value of 1, 5 periods, 15\%}) \\ & = \$1,400,000 \times 2.01136 = \underline{\$2,815,904} \end{aligned}$$

方法二

$$\begin{aligned} & \$100,000 \times (\text{Future Value of an Annuity Due, 20 periods, 3\%}) \\ & = \$100,000 \times 27.67649 = \underline{\$2,767,649} \end{aligned}$$

方法三

$$\begin{aligned} & \$400,000 \times (\text{Future Value of an Annuity Due, 5 periods, 12\%}) \\ & = \$400,000 \times 7.11519 = \underline{\$2,846,076} \end{aligned}$$

由於方法三之終值金額最高，書豪應選擇方法三。

5. $\$2,000,000 \times 2\% \times (\text{Present Value of an Ordinary Annuity, 12 periods, 3\%}) + \$2,000,000$
 $\times (\text{Present Value of 1, 12 periods, 3\%})$
 $= \$40,000 \times 9.95400 + \$2,000,000 \times 0.70138 = \underline{\$1,800,920}$

6. 方法一

$$\begin{aligned} & \$6,000 + \$16,000 \times (\text{Present Value of an 1, 2 periods, 5\%}) \\ & = \$6,000 + \$16,000 \times 0.90703 = \underline{\$20,512} \end{aligned}$$

方法二

$$\$11,000 \times (\text{Present Value of an Ordinary Annuity, 2 periods, 5\%})$$

6 中級會計學 上 3e 習題解答

$$= \$11,000 \times 1.85941 = \underline{\$20,454}$$

由於方法二之現值較低，八戒應選擇方法二。

7. 方案 A

$$\underline{\$300,000}$$

方案 B

$$\$40,000 \times (\text{Present Value of an Annuity Due, 10 periods, 8\%})$$

$$\$40,000 \times 7.24689 = \underline{\$289,876}$$

由於方案 B 之現值較低，蘋果公司應選擇方案 B。

8. A 公司：

$$\$50,000 \times (\text{Present Value of an Annuity Due, 10 periods, 10\%})$$

$$= \$50,000 \times 6.75902 = \underline{\$337,951}$$

B 公司：

$$\$100,000 + \$25,000 \times (\text{Present Value of an Annuity Due, 16 periods, 5\%}) - \$100,000 \times (\text{Present Value of 1, 10 periods, 10\%})$$

$$= \$100,000 + \$25,000 \times 11.37966 - \$100,000 \times 0.38554 = \underline{\$345,938}$$

C 公司：

$$\$250,000 + \$9,000 \times (\text{Present Value of an Annuity Due, 10 periods, 10\%})$$

$$= \$250,000 + \$9,000 \times 6.75902 = \underline{\$310,831}$$

C 清潔公司收款之現值最低，故諾貝爾公司應選擇與 C 清潔公司簽約。

9. A 買家：\$23,000,000

$$B \text{ 買家：} \$15,000,000 + \$9,500,000 \times (\text{Present Value of an 1, 2 periods, 12\%})$$

$$= \$15,000,000 + \$9,500,000 \times 0.79719 = \underline{\$22,573,305}$$

$$C \text{ 買家：} \$5,400,000 \times (\text{Present Value of an Annuity Due, 15 periods, 12\%}) \times (\text{Present Value of 1, 5 periods, 12\%}) = \$5,400,000 \times 7.62817 \times 0.56743 = \underline{\$23,373,644}$$

C 買家所支付款項之現值最高，故應將資產銷售給 C 買家。

10. ×5 年底之金額

$$= \$5,050,425 \times (\text{Future Value of an 1, 4 periods, 8\%})$$

$$= \$5,050,425 \times 1.36049 = \$6,871,053$$

$$\begin{aligned} & \times 6 \text{ 年} \sim \times 10 \text{ 年領取金額於} \times 6 \text{ 年初之現值} \\ & = \$600,000 \times (\text{Present Value of an Annuity Due, 5 periods, 8\%}) \\ & = \$600,000 \times 4.31213 = \$2,587,278 \end{aligned}$$

$$\begin{aligned} & \times 11 \text{ 年} \sim \times 25 \text{ 年領取金額於} \times 6 \text{ 年初之現值} \\ & \$6,871,053 - \$2,587,278 = \$4,283,775 \end{aligned}$$

$$\begin{aligned} & \times 11 \text{ 年} \sim \times 25 \text{ 年領取金額} \\ & = \$4,283,775 \div [(\text{到期年金現值 Present Value of an Annuity Due, 30 periods, 4\%}) \times \\ & (\text{Present Value of an 1, 5 periods, 8\%})] \\ & = \$4,283,775 \div (17.98371 \times 0.68058) = \underline{\underline{\$350,000}} \end{aligned}$$

11. 本利和之金額

$$\begin{aligned} & = \$200,000 \times (\text{Future Value of an 1, 6 periods, 1\%}) \times (\text{Future Value of an 1, 8 periods,} \\ & \quad 1.5\%) \times (\text{Future Value of an 1, 6 periods, 2.5\%}) + \$250,000 \times (\text{Future Value of an 1,} \\ & \quad 8 \text{ periods, 1.5\%}) \times (\text{Future Value of an 1, 6 periods, 2.5\%}) + \$300,000 \times (\text{Future Value} \\ & \quad \text{of an 1, 6 periods, 2.5\%}) \\ & = \$200,000 \times 1.06152 \times 1.12649 \times 1.15969 + \$250,000 \times 1.12649 \times 1.15969 + \$300,000 \times \\ & \quad 1.15969 \\ & = \underline{\underline{\$951,851}} \end{aligned}$$

12. 設第三期後每期顧客須付款 X 元

$$\begin{aligned} & \$20,000 + \$10,000 \times (\text{Present Value of an Ordinary Annuity, 2 periods, 6\%}) \\ & \quad + X \times (\text{Present Value of an Ordinary Annuity, 6 periods, 6\%}) \times (\text{Present Value of an 1,} \\ & \quad 2 \text{ periods, 6\%}) \\ & = \$300,000 \\ & \rightarrow \$20,000 + \$10,000 \times 1.83339 + X \times 4.91732 \times 0.89000 = \$300,000 \\ & \rightarrow X = \underline{\underline{\$59,790}} \end{aligned}$$

流動資產包括作為正常營業週期之一部分而出售、消耗或實現之資產（例如存貨及應收帳款），即使不預期於報導期間後十二個月內實現亦然。應收分期帳款為企業預期於正常營業週期中收回變現之款項，符合流動資產之定義，故應全數於財務狀況表列為流動資產，唯須以現值表達