Fundamentals Level – Skills Module

# Financial Management

Friday 7 June 2013

Paper F9

**Time allowed**
Reading and planning:     15 minutes
Writing:                  3 hours

ALL FOUR questions are compulsory and MUST be attempted.

**Formulae Sheet, Present Value and Annuity Tables are on pages 6, 7 and 8.**

**Do NOT open this paper until instructed by the supervisor.**

**During reading and planning time only the question paper may be annotated. You must NOT write in your answer booklet until instructed by the supervisor.**

**This question paper must not be removed from the examination hall.**

**The Association of Chartered Certified Accountants**

ACCA

**ALL FOUR questions are compulsory and MUST be attempted**

1    HDW Co is a listed company which plans to meet increased demand for its products by buying new machinery costing $5 million. The machinery would last for four years, at the end of which it would be replaced. The scrap value of the machinery is expected to be 5% of the initial cost. Capital allowances would be available on the cost of the machinery on a 25% reducing balance basis, with a balancing allowance or charge claimed in the final year of operation.

This investment will increase production capacity by 9,000 units per year and all of these units are expected to be sold as they are produced. Relevant financial information in current price terms is as follows:

|  |  | Forecast inflation |
|---|---|---|
| Selling price | $650 per unit | 4·0% per year |
| Variable cost | $250 per unit | 5·5% per year |
| Incremental fixed costs | $250,000 per year | 5·0% per year |

In addition to the initial cost of the new machinery, initial investment in working capital of $500,000 will be required. Investment in working capital will be subject to the general rate of inflation, which is expected to be 4·7% per year.

HDW Co pays tax on profits at the rate of 20% per year, one year in arrears. The company has a nominal (money terms) after-tax cost of capital of 12% per year.

**Required:**

(a)  **Calculate the net present value of the planned purchase of the new machinery using a nominal (money terms) approach and comment on its financial acceptability.** (14 marks)

(b)  **Discuss the difference between a nominal (money terms) approach and a real terms approach to calculating net present value.** (5 marks)

(c)  **Identify TWO financial objectives of a listed company such as HDW Co and discuss how each of these financial objectives is supported by the planned investment in new machinery.** (6 marks)

**(25 marks)**

**2** AMH Co wishes to calculate its current cost of capital for use as a discount rate in investment appraisal. The following financial information relates to AMH Co:

Financial position statement extracts as at 31 December 2012

|  | $000 | $000 |
|---|---|---|
| Equity | | |
| Ordinary shares (nominal value 50 cents) | 4,000 | |
| Reserves | 18,000 | 22,000 |
| | | |
| Long-term liabilities | | |
| 4% Preference shares (nominal value $1) | 3,000 | |
| 7% Bonds redeemable after six years | 3,000 | |
| Long-term bank loan | 1,000 | 7,000 |
| | | 29,000 |

The ordinary shares of AMH Co have an ex div market value of $4·70 per share and an ordinary dividend of 36·3 cents per share has just been paid. Historic dividend payments have been as follows:

| Year | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|
| Dividends per share (cents) | 30·9 | 32·2 | 33·6 | 35·0 |

The preference shares of AMH Co are not redeemable and have an ex div market value of 40 cents per share. The 7% bonds are redeemable at a 5% premium to their nominal value of $100 per bond and have an ex interest market value of $104·50 per bond. The bank loan has a variable interest rate that has averaged 4% per year in recent years.

AMH Co pays profit tax at an annual rate of 30% per year.

**Required:**

**(a)** Calculate the market value weighted average cost of capital of AMH Co. (12 marks)

**(b)** Discuss how the capital asset pricing model can be used to calculate a project-specific cost of capital for AMH Co, referring in your discussion to the key concepts of systematic risk, business risk and financial risk. (8 marks)

**(c)** Discuss why the cost of equity is greater than the cost of debt. (5 marks)

**(25 marks)**

**3** TGA Co, a multinational company, has annual credit sales of $5·4 million and related cost of sales are $2·16 million. Approximately half of all credit sales are exports to a European country, which are invoiced in euros. Financial information relating to TGA Co is as follows:

|  | $000 | $000 |
|---|---|---|
| Inventory | 473·4 | |
| Trade receivables | 1,331·5 | 1,804·9 |
| Trade payables | 177·5 | |
| Overdraft | 1,326·6 | 1,504·1 |
| Net working capital | | 300·8 |

TGA Co plans to change working capital policy in order to improve its profitability. This policy change will not affect the current levels of credit sales, cost of sales or net working capital. As a result of the policy change, the following working capital ratio values are expected:

| Inventory days | 50 days |
|---|---|
| Trade receivables days | 62 days |
| Trade payables days | 45 days |

Other relevant financial information is as follows:

| Short-term dollar borrowing rate | 5% per year |
|---|---|
| Short-term dollar deposit rate | 4% per year |

Assume there are 365 days in each year.

**Required:**

**(a) For the change in working capital policy, calculate the change in the operating cycle, the effect on the current ratio and the finance cost saving. Comment on your findings.** (8 marks)

**(b) Discuss the key elements of a trade receivables management policy.** (7 marks)

**(c) Explain the different types of foreign currency risk faced by a multinational company.** (6 marks)

**(d)** TGA Co expects to receive €500,000 from export sales at the end of three months. A forward rate of €1·687 per $1 has been offered by the company's bank and the spot rate is €1·675 per $1. TGA Co can borrow short term in the euro at 9% per year.

**Required:**

**Calculate the dollar income from a forward market hedge and a money market hedge, and indicate which hedge would be financially preferred by TGA Co.** (4 marks)

**(25 marks)**

**4** GXG Co is an e-business which designs and sells computer applications (apps) for mobile phones. The company needs to raise $3,200,000 for research and development and is considering three financing options.

### Option 1
GXG Co could suspend dividends for two years, and then pay dividends of 25 cents per share from the end of the third year, increasing dividends annually by 4% per year in subsequent years. Dividends in recent years have grown by 3% per year.

### Option 2
GXG Co could seek a stock market listing, raising $3·2 million after issue costs of $100,000 by issuing new shares to new shareholders at a price of $2·50 per share.

### Option 3
GXG Co could issue $3,200,000 of bonds paying annual interest of 6%, redeemable after ten years at par.

Recent financial information relating to GXG Co is as follows:

|                         | $000  |
|-------------------------|-------|
| Operating profit        | 3,450 |
| Interest                | 200   |
| Profit before taxation  | 3,250 |
| Taxation                | 650   |
| Profit after taxation   | 2,600 |
| Dividends               | 1,600 |

|                                         | $000  |
|-----------------------------------------|-------|
| Ordinary shares (nominal value 50 cents) | 5,000 |

Under options 2 and 3, the funds invested would earn a before-tax return of 18% per year.

The profit tax rate paid by the company is 20% per year.

GXG Co has a cost of equity of 9% per year, which is expected to remain constant.

**Required:**

**(a)** Using the dividend valuation model, calculate the value of GXG Co under option 1, and advise whether option 1 will be acceptable to shareholders. (6 marks)

**(b)** Calculate the effect on earnings per share of the proposal to raise finance by a stock market listing (option 2), and comment on the acceptability of the proposal to existing shareholders. (5 marks)

**(c)** Calculate the effect on earnings per share and interest cover of the proposal to raise finance by issuing new debt (option 3), and comment on your findings. (5 marks)

**(d)** Discuss the factors to be considered in choosing between traded bonds, new equity issued via a placing and venture capital as sources of finance. (9 marks)

**(25 marks)**

# Formulae Sheet

## Economic order quantity

$$= \sqrt{\frac{2C_0 D}{C_h}}$$

## Miller–Orr Model

$$\text{Return point} = \text{Lower limit} + (\frac{1}{3} \times \text{spread})$$

$$\text{Spread} = 3 \left[ \frac{\frac{3}{4} \times \text{transaction cost} \times \text{variance of cash flows}}{\text{interest rate}} \right]^{\frac{1}{3}}$$

## The Capital Asset Pricing Model

$$E\left(r_i\right) = R_f + \beta_i \left(E\left(r_m\right) - R_f\right)$$

## The asset beta formula

$$\beta_a = \left[ \frac{V_e}{\left(V_e + V_d\left(1-T\right)\right)} \beta_e \right] + \left[ \frac{V_d\left(1-T\right)}{\left(V_e + V_d\left(1-T\right)\right)} \beta_d \right]$$

## The Growth Model

$$P_o = \frac{D_0\left(1+g\right)}{\left(r_e - g\right)}$$

## Gordon's growth approximation

$$g = br_e$$

## The weighted average cost of capital

$$\text{WACC} = \left[ \frac{V_e}{V_e + V_d} \right] k_e + \left[ \frac{V_d}{V_e + V_d} \right] k_d \left(1-T\right)$$

## The Fisher formula

$$\left(1+i\right) = \left(1+r\right)\left(1+h\right)$$

## Purchasing power parity and interest rate parity

$$S_1 = S_0 \times \frac{\left(1+h_c\right)}{\left(1+h_b\right)} \qquad F_0 = S_0 \times \frac{\left(1+i_c\right)}{\left(1+i_b\right)}$$

# Present Value Table

Present value of 1 i.e. $(1 + r)^{-n}$

Where    r = discount rate

          n = number of periods until payment

*Discount rate (r)*

| Periods (n) | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0·990 | 0·980 | 0·971 | 0·962 | 0·952 | 0·943 | 0·935 | 0·926 | 0·917 | 0·909 | 1 |
| 2 | 0·980 | 0·961 | 0·943 | 0·925 | 0·907 | 0·890 | 0·873 | 0·857 | 0·842 | 0·826 | 2 |
| 3 | 0·971 | 0·942 | 0·915 | 0·889 | 0·864 | 0·840 | 0·816 | 0·794 | 0·772 | 0·751 | 3 |
| 4 | 0·961 | 0·924 | 0·888 | 0·855 | 0·823 | 0·792 | 0·763 | 0·735 | 0·708 | 0·683 | 4 |
| 5 | 0·951 | 0·906 | 0·863 | 0·822 | 0·784 | 0·747 | 0·713 | 0·681 | 0·650 | 0·621 | 5 |
| 6 | 0·942 | 0·888 | 0·837 | 0·790 | 0·746 | 0·705 | 0·666 | 0·630 | 0·596 | 0·564 | 6 |
| 7 | 0·933 | 0·871 | 0·813 | 0·760 | 0·711 | 0·665 | 0·623 | 0·583 | 0·547 | 0·513 | 7 |
| 8 | 0·923 | 0·853 | 0·789 | 0·731 | 0·677 | 0·627 | 0·582 | 0·540 | 0·502 | 0·467 | 8 |
| 9 | 0·914 | 0·837 | 0·766 | 0·703 | 0·645 | 0·592 | 0·544 | 0·500 | 0·460 | 0·424 | 9 |
| 10 | 0·905 | 0·820 | 0·744 | 0·676 | 0·614 | 0·558 | 0·508 | 0·463 | 0·422 | 0·386 | 10 |
| 11 | 0·896 | 0·804 | 0·722 | 0·650 | 0·585 | 0·527 | 0·475 | 0·429 | 0·388 | 0·350 | 11 |
| 12 | 0·887 | 0·788 | 0·701 | 0·625 | 0·557 | 0·497 | 0·444 | 0·397 | 0·356 | 0·319 | 12 |
| 13 | 0·879 | 0·773 | 0·681 | 0·601 | 0·530 | 0·469 | 0·415 | 0·368 | 0·326 | 0·290 | 13 |
| 14 | 0·870 | 0·758 | 0·661 | 0·577 | 0·505 | 0·442 | 0·388 | 0·340 | 0·299 | 0·263 | 14 |
| 15 | 0·861 | 0·743 | 0·642 | 0·555 | 0·481 | 0·417 | 0·362 | 0·315 | 0·275 | 0·239 | 15 |

| (n) | 11% | 12% | 13% | 14% | 15% | 16% | 17% | 18% | 19% | 20% | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0·901 | 0·893 | 0·885 | 0·877 | 0·870 | 0·862 | 0·855 | 0·847 | 0·840 | 0·833 | 1 |
| 2 | 0·812 | 0·797 | 0·783 | 0·769 | 0·756 | 0·743 | 0·731 | 0·718 | 0·706 | 0·694 | 2 |
| 3 | 0·731 | 0·712 | 0·693 | 0·675 | 0·658 | 0·641 | 0·624 | 0·609 | 0·593 | 0·579 | 3 |
| 4 | 0·659 | 0·636 | 0·613 | 0·592 | 0·572 | 0·552 | 0·534 | 0·516 | 0·499 | 0·482 | 4 |
| 5 | 0·593 | 0·567 | 0·543 | 0·519 | 0·497 | 0·476 | 0·456 | 0·437 | 0·419 | 0·402 | 5 |
| 6 | 0·535 | 0·507 | 0·480 | 0·456 | 0·432 | 0·410 | 0·390 | 0·370 | 0·352 | 0·335 | 6 |
| 7 | 0·482 | 0·452 | 0·425 | 0·400 | 0·376 | 0·354 | 0·333 | 0·314 | 0·296 | 0·279 | 7 |
| 8 | 0·434 | 0·404 | 0·376 | 0·351 | 0·327 | 0·305 | 0·285 | 0·266 | 0·249 | 0·233 | 8 |
| 9 | 0·391 | 0·361 | 0·333 | 0·308 | 0·284 | 0·263 | 0·243 | 0·225 | 0·209 | 0·194 | 9 |
| 10 | 0·352 | 0·322 | 0·295 | 0·270 | 0·247 | 0·227 | 0·208 | 0·191 | 0·176 | 0·162 | 10 |
| 11 | 0·317 | 0·287 | 0·261 | 0·237 | 0·215 | 0·195 | 0·178 | 0·162 | 0·148 | 0·135 | 11 |
| 12 | 0·286 | 0·257 | 0·231 | 0·208 | 0·187 | 0·168 | 0·152 | 0·137 | 0·124 | 0·112 | 12 |
| 13 | 0·258 | 0·229 | 0·204 | 0·182 | 0·163 | 0·145 | 0·130 | 0·116 | 0·104 | 0·093 | 13 |
| 14 | 0·232 | 0·205 | 0·181 | 0·160 | 0·141 | 0·125 | 0·111 | 0·099 | 0·088 | 0·078 | 14 |
| 15 | 0·209 | 0·183 | 0·160 | 0·140 | 0·123 | 0·108 | 0·095 | 0·084 | 0·074 | 0·065 | 15 |

# Annuity Table

Present value of an annuity of 1 i.e. $\dfrac{1 - (1 + r)^{-n}}{r}$

Where      r = discount rate
             n = number of periods

*Discount rate (r)*

| Periods (n) | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0·990 | 0·980 | 0·971 | 0·962 | 0·952 | 0·943 | 0·935 | 0·926 | 0·917 | 0·909 | 1 |
| 2 | 1·970 | 1·942 | 1·913 | 1·886 | 1·859 | 1·833 | 1·808 | 1·783 | 1·759 | 1·736 | 2 |
| 3 | 2·941 | 2·884 | 2·829 | 2·775 | 2·723 | 2·673 | 2·624 | 2·577 | 2·531 | 2·487 | 3 |
| 4 | 3·902 | 3·808 | 3·717 | 3·630 | 3·546 | 3·465 | 3·387 | 3·312 | 3·240 | 3·170 | 4 |
| 5 | 4·853 | 4·713 | 4·580 | 4·452 | 4·329 | 4·212 | 4·100 | 3·993 | 3·890 | 3·791 | 5 |
| 6 | 5·795 | 5·601 | 5·417 | 5·242 | 5·076 | 4·917 | 4·767 | 4·623 | 4·486 | 4·355 | 6 |
| 7 | 6·728 | 6·472 | 6·230 | 6·002 | 5·786 | 5·582 | 5·389 | 5·206 | 5·033 | 4·868 | 7 |
| 8 | 7·652 | 7·325 | 7·020 | 6·733 | 6·463 | 6·210 | 5·971 | 5·747 | 5·535 | 5·335 | 8 |
| 9 | 8·566 | 8·162 | 7·786 | 7·435 | 7·108 | 6·802 | 6·515 | 6·247 | 5·995 | 5·759 | 9 |
| 10 | 9·471 | 8·983 | 8·530 | 8·111 | 7·722 | 7·360 | 7·024 | 6·710 | 6·418 | 6·145 | 10 |
| 11 | 10·368 | 9·787 | 9·253 | 8·760 | 8·306 | 7·887 | 7·499 | 7·139 | 6·805 | 6·495 | 11 |
| 12 | 11·255 | 10·575 | 9·954 | 9·385 | 8·863 | 8·384 | 7·943 | 7·536 | 7·161 | 6·814 | 12 |
| 13 | 12·134 | 11·348 | 10·635 | 9·986 | 9·394 | 8·853 | 8·358 | 7·904 | 7·487 | 7·103 | 13 |
| 14 | 13·004 | 12·106 | 11·296 | 10·563 | 9·899 | 9·295 | 8·745 | 8·244 | 7·786 | 7·367 | 14 |
| 15 | 13·865 | 12·849 | 11·938 | 11·118 | 10·380 | 9·712 | 9·108 | 8·559 | 8·061 | 7·606 | 15 |

| (n) | 11% | 12% | 13% | 14% | 15% | 16% | 17% | 18% | 19% | 20% | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0·901 | 0·893 | 0·885 | 0·877 | 0·870 | 0·862 | 0·855 | 0·847 | 0·840 | 0·833 | 1 |
| 2 | 1·713 | 1·690 | 1·668 | 1·647 | 1·626 | 1·605 | 1·585 | 1·566 | 1·547 | 1·528 | 2 |
| 3 | 2·444 | 2·402 | 2·361 | 2·322 | 2·283 | 2·246 | 2·210 | 2·174 | 2·140 | 2·106 | 3 |
| 4 | 3·102 | 3·037 | 2·974 | 2·914 | 2·855 | 2·798 | 2·743 | 2·690 | 2·639 | 2·589 | 4 |
| 5 | 3·696 | 3·605 | 3·517 | 3·433 | 3·352 | 3·274 | 3·199 | 3·127 | 3·058 | 2·991 | 5 |
| 6 | 4·231 | 4·111 | 3·998 | 3·889 | 3·784 | 3·685 | 3·589 | 3·498 | 3·410 | 3·326 | 6 |
| 7 | 4·712 | 4·564 | 4·423 | 4·288 | 4·160 | 4·039 | 3·922 | 3·812 | 3·706 | 3·605 | 7 |
| 8 | 5·146 | 4·968 | 4·799 | 4·639 | 4·487 | 4·344 | 4·207 | 4·078 | 3·954 | 3·837 | 8 |
| 9 | 5·537 | 5·328 | 5·132 | 4·946 | 4·772 | 4·607 | 4·451 | 4·303 | 4·163 | 4·031 | 9 |
| 10 | 5·889 | 5·650 | 5·426 | 5·216 | 5·019 | 4·833 | 4·659 | 4·494 | 4·339 | 4·192 | 10 |
| 11 | 6·207 | 5·938 | 5·687 | 5·453 | 5·234 | 5·029 | 4·836 | 4·656 | 4·486 | 4·327 | 11 |
| 12 | 6·492 | 6·194 | 5·918 | 5·660 | 5·421 | 5·197 | 4·988 | 4·793 | 4·611 | 4·439 | 12 |
| 13 | 6·750 | 6·424 | 6·122 | 5·842 | 5·583 | 5·342 | 5·118 | 4·910 | 4·715 | 4·533 | 13 |
| 14 | 6·982 | 6·628 | 6·302 | 6·002 | 5·724 | 5·468 | 5·229 | 5·008 | 4·802 | 4·611 | 14 |
| 15 | 7·191 | 6·811 | 6·462 | 6·142 | 5·847 | 5·575 | 5·324 | 5·092 | 4·876 | 4·675 | 15 |

**End of Question Paper**