



PROFESSIONAL LEVEL EXAMINATION

DECEMBER 2016

Mock Exam 2

FINANCIAL MANAGEMENT

ANSWERS

Question 1

Marking guide

	Marks
1.1 NPV calculation(s) – see detail within answer below	20
1.2 Ethical considerations	4
1.3 Shareholder value analysis	5
1.4 Real options	6
Total	<u>35</u>

1.1 Cease Domestic Tool (DT) production now:

	t0 £	t1 £	t2 £	t3 £	Marks
New machine (m/c)	(4,200,000)			0	1
Tax on new m/c (W1)	158,760	130,183	106,750	486,307	2
Old m/c scrap	250,000				½
Old m/c tax saved (W2)	123,900				1½
Old m/c forgone scrap				(50,000)	½
Old m/c forgone tax (W3)	(31,752)	(26,037)	(21,350)	(86,761)	2
DT contribution forgone (W4)		(1,566,000)	(1,566,000)	(1,566,000)	1
Boiler contribution gain (W5)		3,900,000	3,510,000	3,000,000	2½
Fixed costs increase (W6)		(200,000)	(200,000)	(200,000)	1½
Tax at 21% on profit		(448,140)	(366,240)	(259,140)	1
Working capital (W7)	<u>(1,600,000)</u>	<u>800,000</u>	<u>700,000</u>	<u>100,000</u>	3
Total cash flows	(5,299,092)	2,590,006	2,163,160	1,424,406	
Discount 7%	<u>1.000</u>	<u>0.935</u>	<u>0.873</u>	<u>0.816</u>	½
PV	(5,299,092)	2,421,656	1,888,439	1,162,315	½
NPV	<u>173,318</u>				

Marks were awarded for ignoring sales growth of bought-in tools. 1½

Positive NPV. Shareholder wealth increased. Therefore proceed with expansion. 1

Max: 20

Alternative answer as two separate NPVs:

Expand boilers:

Marks

	t0 £	t1 £	t2 £	t3 £	
New machine (m/c)	(4,200,000)			0	1
Tax on new m/c (W1)	158,760	130,183	106,750	486,307	2
Old m/c scrap	250,000				$\frac{1}{2}$
Old m/c tax saved (W2)	123,900				1½
Boiler contribution (W5)		8,520,000	8,130,000	7,620,000	1
Fixed costs (W6)		(2,100,000)	(2,100,000)	(2,100,000)	$\frac{1}{2}$
Tax at 21% on profit		(1,348,200)	(1,266,300)	(1,159,200)	$\frac{1}{2}$
Working capital (W7)	<u>(4,700,000)</u>	<u>800,000</u>	<u>700,000</u>	<u>3,200,000</u>	2
Total cash flows	(8,367,340)	6,001,983	5,570,450	8,047,107	
Discount 7%	<u>1.000</u>	<u>0.935</u>	<u>0.873</u>	<u>0.816</u>	$\frac{1}{2}$
PV	(8,367,340)	5,611,854	4,863,003	6,566,439	$\frac{1}{2}$
NPV	<u><u>8,673,956</u></u>				

Don't expand boilers:

	t0 £	t1 £	t2 £	t3 £	
Old m/c scrap				50,000	$\frac{1}{2}$
Old m/c tax (W3)	31,752	26,037	21,350	86,761	2
DT contribution (W4)		1,566,000	1,566,000	1,566,000	1
Boiler contribution (W5)		4,620,000	4,620,000	4,620,000	1½
Fixed costs (W6)		(1,900,000)	(1,900,000)	(1,900,000)	1
Tax at 21% on profit		(900,060)	(900,060)	(900,060)	$\frac{1}{2}$
Working capital (W7)	<u>(3,100,000)</u>	<u> </u>	<u> </u>	<u>3,100,000</u>	1

	t0	t1	t2	t3
	£	£	£	£
Total cash flows	(3,068,248)	3,411,977	3,407,290	6,622,701
Discount 7%	<u>1.000</u>	<u>0.935</u>	<u>0.873</u>	<u>0.816</u>
PV	(3,068,248)	3,190,198	2,974,564	5,404,124
NPV	<u>8,500,638</u>			

Marks were awarded for ignoring sales growth of bought-in tools OR putting it into both NPVs. 1½

Positive NPV difference of £173,318. Shareholder wealth increased. Therefore proceed with expansion. 1

WORKINGS

(1) Tax on new m/c

	t0	t1	t2	t3
	£	£	£	£
WDV	4,200,000	3,444,000	2,824,080	2,315,746
WDA @ 18%	<u>(756,000)</u>	<u>(619,920)</u>	<u>(508,334)</u>	<u>(2,315,746)</u>
WDV	<u>3,444,000</u>	<u>2,824,080</u>	<u>2,315,746</u>	<u>—</u>
Tax @ 21%	<u>158,760</u>	<u>130,183</u>	<u>106,750</u>	<u>486,307</u>

(2) Sell now

WDV b/f	840,000
Current scrap value	<u>(250,000)</u>
Balancing allowance (BA)	<u>590,000</u>
Tax saving on BA @ 21%	<u>123,900</u>

(3) Old m/c tax

	t0	t1	t2	t3
	£	£	£	£
Sell 2019				
WDV	840,000	688,800	564,816	463,149
WDA @ 18%	<u>(151,200)</u>	<u>(123,984)</u>	<u>(101,667)</u>	<u>(413,149)</u>
WDV	<u>688,800</u>	<u>564,816</u>	<u>463,149</u>	<u>50,000</u>
Tax saving on WDA @ 21%	<u>31,752</u>	<u>26,037</u>	<u>21,350</u>	<u>86,761</u>

(4) DT contribution

	£
DT sales	8,700,000
Contribution @ 18%	<u>1,566,000</u>

(5) **Boiler contribution**

	t0 £	t1 £	t2 £	t3 £
Boiler sales now	16,500,000			
Boiler contribute on @ 28%	4,620,000			
Boiler sales new		28,400,000	27,100,000	25,400,000
Boiler contribution @ 30%		<u>8,520,000</u>	<u>8,130,000</u>	<u>7,620,000</u>
Boiler increased contribution		<u>3,900,000</u>	<u>3,510,000</u>	<u>3,000,000</u>

(6) **Fixed costs**

	t0 £	t1 £	t2 £	t3 £
Fixed costs	(700,000)	(2,100,000)	(2,100,000)	(2,100,000)
	<u>(1,200,000)</u>			
Increase		<u>(200,000)</u>	<u>(200,000)</u>	<u>(200,000)</u>

(7) **Working capital**

	t0 £	t1 £	t2 £	t3 £
Working capital	900,000	4,700,000	3,900,000	3,200,000
	<u>2,200,000</u>			
Increase		<u>(1,600,000)</u>	<u>800,000</u>	<u>700,000</u>

The £100,000 inflow in t3 is the recovery of the working capital. Note that the investment in working capital changes take place at the start of the relevant year.

Marks

- 1.2 The request from the Finance Director to use a scrap value of £500,000 is a possible threat to the fundamental principles of objectivity and professional competence and due care.

1

The ICAEW code of ethics in this regard states:

'Threats to compliance with the fundamental principles, for example, self-interest or intimidation threats to objectivity or professional competence and due care, are created where a professional accountant in business is pressured (either externally or by the possibility of personal gain) to become associated with misleading information or to become associated with misleading information through the actions of others.'

Accordingly, professional accountants shall not be associated with reports, returns, communications or other information where they believe that the information:

- Contains a materially false or misleading statement;
- Contains statements or information furnished recklessly;
- Omits or obscures information required to be included where such omission or obscurity would be misleading.'

In this scenario, it could be misleading to present an appraisal of the expansion based on a scrap value of £500,000 since it is more likely that the equipment will have minimal scrap value. **1**

The investment appraisal should not be misleading as it will be presented to various stakeholders including the board of directors, shareholders, investors and lenders who will make decisions based on this information. **1**

Accordingly, your calculations should be based on the Head of Production's estimate of a minimal scrap value and you would need to argue the case of using this value with the Finance Director. **1**

A compromise would be to present calculations of NPVs based on both scrap values, advising that the more likely scenario is that the equipment will have minimal scrap value. **1**

However if the Finance Director insists that you only use the figure of £500,000 in your appraisal, you should consider the following courses of action:

- Reviewing the level of threat to the fundamental principles by seeking advice from a third party or from the ICAEW
- Where the threat cannot be reduced to an acceptable level, refuse to be or remain associated with the appraisal **1**

1 mark per well explained point

Max: 4

Marks

1.3 Shareholder value analysis (SVA) concentrates on a company's ability to generate value and thereby increase shareholder wealth. SVA is based on the premise that the value of a business is equal to the sum of the present values of all of its activities. SVA posits that a business has seven value drivers: **2**

1. Life of projected cash flows
2. Sales growth rate
3. Operating profit margin
4. Corporate tax rate
5. Investment in non-current assets
6. Investment in working capital
7. Cost of capital

2½

The value of the business is calculated from the cash flows generated by drivers 1 – 6 which are then discounted at the company's cost of capital (driver 7).

In the case of Britton, all of the seven SVA value drivers are relevant and are used in the calculation. Britton's (three year) strategy of expanding its boiler market will increase the value of the firm.

1

Max: 5

1.4 Follow on options

Marks

Expanding the boiler market may give future opportunities to expand, such as with boiler maintenance services. Follow on opportunities can increase shareholder wealth by more than the initial NPV analysis.

2

Abandonment options

The project may offer the opportunity to abandon the project if things go wrong, by selling the assets. Some of the resources used in this type of project are likely to be scalable, which will allow the business to reduce capacity or suspend operations temporarily.

2

Timing options

Projects where commencement can be delayed are often attractive. In a volatile market a project that can be delayed is like a call option with a long period of expiry. If Britton can delay investment it can wait and see what happens before expanding the boiler market or not (exercising the option or not). The longer the delay, the more valuable the option.

2

Growth options

Growth options include the ability to expand boiler production if the market conditions are favourable and possible strategic alliances to break into other markets.

2

Max: 6

Question 2

Marking guide

Marks

2.1 (a) Impact of the rights issue on company earnings:		
Current situation	1/2	
Ex rights	2	
Current total earnings	1/2	
New total earnings	1	
Add interest saved on redeemed debenture stock	1	
New Earnings per share (EPS)	1/2	
Current Earnings per share	1/2	
Decrease in EPS	1/2	
(b) Impact of the rights issue on shareholder wealth:		
Current value of shareholding	1/2	
Value of new shareholding	1/2	
Less cost of taking up the rights	1/2	
Current share of earnings	1/2	
New share of earnings	1/2	
		9
2.2 (a) Reasons to reduce financial gearing:		
One mark per well explained point	2	
(b) The impact of a reduction in financial gearing:		
One mark per well explained point with reference to the scenario	3	
		max 5
2.3 One mark per well explained point		max 3
2.4 One mark per well explained point		max 6
2.5 One mark per well explained point		max 4
2.6 Current cum interest market price:		
Total present value	1 1/2	
Cum interest price	1	
Factors to consider (market interest rates, tax rate, risk)	1 1/2	4
2.7 One mark per well explained point		max 4
Total		35

2.1 (a) Number of shares to be issued = $285/0.95 = 300\text{m}$	Marks
Number of existing shares = $300\text{m} \times 2 = 600\text{m}$	
Price of existing shares = $\text{£}0.95/(1 - 0.24) = \text{£}1.25$	

	Shares (m)	Market value (£)	£m	
Current situation	600	1.25	750	1/2
Rights issue	300	0.95	285	
Ex-rights	900	1.15	1,035	2

		£'000	
Current total earnings	£750m/9.6	78,125	½
Plus interest saved on redeemed debenture stock	$285\text{m} \times 8\% \times 79\%$	<u>18,012</u>	1
New total earnings		<u>96,137</u>	1
New Earnings per Share (EPS)	£96,137,000/900m	£0.107	½
Current Earnings per Share (EPS = price / P/E ratio)	£1.25/9.6	£0.130	½
Decrease in EPS		17.7%	½

(b)		£	
Current value of shareholding	$7,000 \times £1.25$	8,750	½
Value of new shareholding	$7,000 \times 1.5 \times £1.15$	12,075	½
Less cost of taking up the rights	$3,500 \times £0.95$	<u>(3,325)</u>	½
		<u>8,750</u>	
Current share of earnings	$7,000 \times £0.13$	£910	½
New share of earnings	$10,500 \times £0.107$	£1,124	½

Total: 9

Marks

2.2 (a) Reduced gearing will cut the financial risk. **1**

The impact of gearing is that there will be (a) regular interest payments and (b) the need at some future date to repay the capital sum that has been borrowed. **1**

The implication of the cut in gearing is that it is regarded as too high at the moment by Bettalot and beyond its optimal level. **1**

1 mark per well explained point

Max: 2

Marks

(b) As gearing increases or decreases, then financial risk does the same. **1**

The traditional view and M&M 1963 allowing for market imperfections is that the cost of equity moves in the same direction as the level of gearing. **1**

Thus by repaying some of its outstanding debt, Bettalot will cut its cost of equity (reduced financial risk/financial distress) and as a result, all else being equal, its share price will increase. **1**

The M&M 1963 view suggests two opposing effects on the share price from a reduction in gearing – a fall from a reduction in the tax shield on debt and a rise from a reduction in the cost of equity through lower financial risk. **1**

1 mark per well explained point with reference to the scenario

Max: 3

Marks

2.3 With the companies in financial distress, there is a real chance that they will default on interest payments and/or the repayment of sums due on redemption.

1

If they do default, then where the debentures are secured on assets these assets could be sold, which would put the companies' futures in doubt.

1

Thus debenture holders would have far greater influence/control over company policy than is the norm.

1

1 mark per well explained point

Max: 3

Marks

2.4 Covenants used by suppliers of debt finance can be divided into five main categories:

Financial covenants

Certain financial limits **must not be breached**, for example, gearing ratio, interest cover and net worth of the business.

1

Restrictions on issuing new debt

These usually prevent the issue of new debt with a superior claim on assets, unless the existing debt is upgraded to have the same priority, or unless the firm maintains a minimum prescribed asset backing.

1

Restrictions on asset rentals, leasing, and sale and leaseback are also often used.

1

Restrictions on dividends

Dividend growth is usually required to be linked to earnings. Repurchase of equity (effectively a dividend) is also often restricted.

1

Restrictions on merger activity

Debt covenants may prohibit mergers unless post-merger asset backing of loans is maintained at a minimum prescribed level.

1

Restrictions on investment policy

Covenants employed include restrictions on investments in other companies, restrictions on the disposal of assets, and requirements for the maintenance of assets. This is usually considered to be the most difficult aspect for creditors to monitor.

1

Contravention of these agreements may result in the loan becoming immediately repayable, thus allowing the debenture holders to restrict the size of any losses. However, in some cases, the debt can be renegotiated.

1

1 mark per well explained point

Max: 6

Marks

2.5 In a debt for equity swap lenders are given shares in the company in exchange for the cancellation of some (or all) of their debt. **1**

The alternative outcome for lenders (ie, if no swap takes place) could be that they lose their money altogether, as the company concerned in a swap will be suffering liquidity problems. **1**

If the debt equity swap went ahead there would now be more shares in issue. **1**

The gearing level would fall and any tax advantages of gearing would be lost. **1**

These two combined are likely to cause a fall in the share price. **1**

1 mark per well explained point

Max: 4

2.6 To calculate the market value, the pre-tax cost of debt needs to be found and used to discount the pre-tax cashflows.

Pre-tax cost of debt = $5\% / (1 - 0.21) = 6.3\%$

Year	Cash flow (£)	6.3% factor	PV (£)
1 – 3	6.00	2.658*	15.95
3	100	0.833**	<u>83.30</u>
Total Present Value			<u>99.25</u>

* $AF_{1-3} = 1/0.063[1 - 1/(1.063^3)]$ ** $DF_3 = 1/1.063^3$

Marks

1½

The PV of the future cash flows is £99.25, which would be the ex interest price in Year 0.

Thus the cum interest price would be (£99.25 + £6) £105.25 **1**

Other factors to consider: market interest rates, tax rate, risk (linked to any security, amount of other debt). **1½**

Marks

2.7 Behavioural finance is seen as an alternative to the efficient markets hypothesis.

It attempts to explain the market implications of the behavioural tendencies behind investor decisions. **1**

There are a number of observed behavioural effects, which question the validity of the efficient markets hypothesis (EMH).

These behavioural effects include overconfidence by investors in their own ability, leading them to ignore warning signs about company performance and for example not sell their shares when a company makes an announcement about poor financial performance as would be expected under EMH. **1**

A further significant effect occurs where investors ignore the bigger picture and concentrate on one small area of performance, such as that of one particular share. This is known as narrow framing. 1

Another important effect is that of extrapolative expectations, where investors expect rising prices to keep rising. This effect is thought to contribute to stock market bubbles. 1

Overall, despite these behavioural tendencies meaning that investors do not necessarily act rationally in all circumstances, the UK Stock Market can be seen as relatively efficient with the odd anomaly, rather than not being efficient at all. 1

Max: 4

Question 3

Marking guide

		Marks
3.1 (a) Strengthening of sterling – calculation	1½	
Weakening of sterling – calculation	<u>1½</u>	3
(b) Forward contract calculation	2	
Money market hedge calculation	4	
Option calculation	<u>2</u>	8
(c) 1 – 2 marks per relevant point		max 8
3.2 (a) Difference between differences	1	
Split of potential gain between parties	2	
New net payment under interest rate swap	3	
Both parties pay less than available fixed and variable rates	<u>2</u>	8
(b) Counterparty risk	1	
Position or market risk	1	
Transparency risk	<u>1</u>	
		3
Total		<u>30</u>

3.1 (a) Strengthening of sterling = $1.1084 \times 1.01 = \text{€}1.1195/\text{£}$	Marks
$\text{€}3,500,000/1.1195 = \text{£}3,126,396$	1½
Weakening of sterling = $1.1084 \times 0.99 = \text{€}1.0973/\text{£}$	
$\text{€}3,500,000/1.0973 = \text{£}3,189,647$	1½

(b)

Forward contract	Spot rate	1.1084	
Less premium		<u>(0.0040)</u>	1
		1.1044	
Sterling receivable	$\text{€}3,500,000/1.1044$	<u>£3,169,142</u>	1

Money market hedge

The company wants to use its €3,5 million receipts in three months' time to pay off a money market loan in euros.

Euro borrowing rate (3 months)	$3.4\%/4 = 0.85\%$	1
Size of euro loan now ($\text{€}3,500,000 \times 1/1.0085$)	£3,470,501	1
Convert euros into sterling at spot rate:		
Receipt ($\text{€}3,470,501/1.1084$)	£3,131,091	1
Invest at $3.9\%/4 = 0.975\%$ for three months: Interest	<u>£30,528</u>	1
Total sterling receipts	<u>£3,161,619</u>	

Option

Type of contract	Call
Number of contracts	$\text{€}3.5\text{m}/(1.102 \times \text{£}62,500) = 50.8$ So 51 contracts
Premium	$0.0205 \times \text{£}62,500 \times 51 = \text{€}65,344$ at 1.1026 = $\text{£}59,264$
	€

Option market

Prevailing exchange rate in 3 months	1.1035
Have right to buy £ for	1.1020
Intrinsic value of option (€/£)	<u>0.0015</u>
Exercise?	Yes

Value of options: $\text{€}0.0015 \times \text{£}62,500 = \text{€}93.75$ per contract

Number of contracts = 51

Gain on contracts = $51 \times \text{€}93.75 = \text{€}4,781$ 1

Net outcome

Spot market receipt	3,500,000
Options gain	<u>4,781</u>
	<u>3,504,781</u>

	£
Converted at closing spot rate (1.1035)	3,176,059
Premium	<u>(59,264)</u>
Net sterling receivable	<u>3,116,795</u>

1

Marks

(c) Spot rate gives a sterling value of $\text{£}3,157,705$ ($\text{€}3,500,000/1.1084$). 1

From part 3.1(a), strengthening of sterling would reduce receipt to $\text{£}3,126,396$, whilst weakening of sterling increases sterling receipt to $\text{£}3,189,647$. So it would be preferable if sterling depreciated. 2

Interest rates (and thus the forward rate premium) suggest a weakening of sterling in the three months ahead. The forward contract is preferable to the money market hedge ($\text{£}7,523$ higher) and the option ($\text{£}52,347$ higher). 2

However the option includes upside potential if the exchange rate moves in Hammond's favour, which the forward and the money market hedge do not. 1

The option is expensive and there may be cash flow implications of paying the premium upfront. 1

Management's attitude to risk is important here. If sterling is expected to weaken then perhaps ignore hedge and go with the spot rate. 1

Alternatively as margins are low, the hedging gives more security as the rate of depreciation is not guaranteed. 1

Max: 8

Marks

3.2 (a)

	SWI	HD	Difference
Fixed	9.2%	10.8%	1.6%
Variable	LIBOR + 1.0	LIBOR + 1.4	<u>0.4%</u>
Difference between differences			<u>1.2%</u>

1

This potential gain can be split evenly, ie, 0.6% to each party, which means that SWI would pay LIBOR + 0.4% (LIBOR + [1.0% – 0.6%]) and HD would pay fixed 10.2% (10.8% – 0.6%).

2

The interest rate swap would look like this:

	SWI	HD
Currently pays	(9.2%)	(LIBOR + 1.4)
HD pays SWI (bal fig)	8.8%	(8.8)
SWI pays HD	<u>(LIBOR)</u>	<u>LIBOR</u>
New net payment	<u>(LIBOR + 0.4)</u>	<u>(10.2%)</u>

SWI and HD would both pay at less (0.6% in each case) than their available fixed and variable rates.

3

LIBOR = 8.4%

	SWI	HD
New net interest rate	(LIBOR + 0.4) 8.8% pa	10.2% pa
Interest on £24m pa	£2,112k	£2,448k

2**Max: 8**

Alternatively

	£'000	Rate	£'000	£'000	Rate	£'000
Interest paid now	24,000	(9.2%)	(2,208)	24,000	(9.8%)	(2,352)
HD pays SWI		8.8%	2,112		(8.8%)	(2,112)
SWI pays HD		(8.4%)	<u>(2,016)</u>		8.4%	<u>2,016</u>
New interest payment			<u>(2,112)</u>			<u>(2,448)</u>

(b) Counterparty risk – counterparty defaults before completion **1**

Position or market risk – unfavourable market movements once swap established **1**

Transparency risk – accounts become misleading **1**

Max: 3



ICAEW
Metropolitan House
321 Avebury Boulevard
Milton Keynes
MK9 2FZ
www.icaew.com

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