

Unit 3.8 Investment appraisal

Question 3.8.1 Chelsea Football Club

(a) Reasons could include:

- The potential for Chelsea Football Club (CFC) to return healthier profits in the future
- CFC may have been undervalued at the time of purchase
- Abramovich could simply be a big fan of the club, i.e. personal interest.

Award *1 mark* for each appropriately identified reason that might have influenced Roman Abramovich's decision to buy Chelsea Football Club.

(b) Possible reasons include:

- Abramovich had spent hundreds of millions of pounds of his own money on the club yet there is no guarantee that CFC would become profitable
- CFC was suffering from 'huge financial losses' so Abramovich took a risk by investing in such a business
- The club was not estimated to break-even until around 7 years after Abramovich took over the business.

Award *1–2 marks* if there is a generalized answer, which might lack depth and/or substance or if no application shown.

Award *3–4 marks* for a detailed explanation of why investment can be risky. Appropriate business management terminology is used, with application made to the case study.

(c) The PBP would inform Roman Abramovich how long it would take (as an estimate) before his spending on the club would generate enough revenue to pay back the value of the investment. A shorter payback period would tend to reduce the risk of such an investment project. Ultimately, the PBP acts as a decision-making tool for risk assessment when making investment decisions.

Award *1–2 marks* if the answer lacks detail and/or substance. There is no application made to CFC.

Award *3–4 marks* if there is a thorough commentary on the usefulness of the payback period as an investment decision-making tool for CFC. Appropriate examples are used to substantiate the answer.

Question 3.8.2 Payback period and rate of return

(a) \$140 000

Award *1 mark* for correctly identifying the cost of the investment projects.

(b) Project Atlanta has the shorter payback period, i.e. it reaches breaks even quicker (but only by 4 months).

	Atlanta	Boston
Cumulative cash flow (after 2 years)	\$140 000	\$120 000
Payback period	2 years	2 years and 4 months

Award up to *2 marks* for correctly calculating the payback periods for both projects.

Award up to *2 marks* for the commentary, applying the own figure rule (error carried forward) where applicable.

- (c) Project Atlanta has an ARR of 4.76% which is only marginally higher than the savings interest rate at 4.75%, i.e. the investment risk might not be worthwhile. By contrast, Project Boston has a much better ARR of 9.52% (more than double the savings interest rate), even though both projects cost the same amount of money.

	Atlanta	Boston
ARR	$[(\$160\text{ k} - \$140\text{ k}) \div 3\text{ years}] / \140 k = 4.76%	$[(\$180\text{ k} - \$140\text{ k}) \div 3\text{ years}] / \140 k = 9.52%

Award up to 2 marks for correctly calculating the average rate of return for both projects, with the working out shown.

Award up to 2 marks for the commentary, with consideration of the benchmarked savings interest rate.

- (d)

	Atlanta	Boston
Payback	2 years	2 years and 4 months
ARR	4.76%	9.52%

This depends on whether the firm's priority was a quick return on the investment (in which case Project Atlanta would be picked) or if profit was more of a priority. Although there is a much better average rate of return for Project Boston, a large amount of the money is received at a later stage in the project's timeline, i.e. it would be worth less based on today's value. Both projects have an expected annual return that is greater than the base interest rate, albeit very marginally for Project Atlanta. Nevertheless, Project Boston yields a significantly higher return than Project Atlanta, making it relatively more attractive despite its slightly longer payback period.

Award 1–2 marks for a generalized answer that lacks details of which investment project is most attractive, given the available information.

Award 3–4 marks for a good examination of several factors, with some understanding of which investment project is most attractive. The answer might lack substance in some areas or the application of the stimulus material.

Award 5–6 marks for a thorough examination of several factors, with a detailed understanding of which investment project is most attractive based on the stimulus material. There is effective use of relevant business management terminology.

Question 3.8.3 Calculating net present value

- (a)

Year	Investment Colorado			Investment Detroit		
	Net Cash Flow (\$)	Discount Factor	Present Value (\$)	Net Cash Flow (\$)	Discount Factor	Present Value (\$)
0	(300 000)	1.00	(300 000)	300 000	1.00	(300 000)
1	50 000	0.9434	47 170	100 000	0.9434	94 340
2	100 000	0.8900	89 000	200 000	0.8900	178 000
3	200 000	0.8396	167 920	200 000	0.8396	167 920
4	200 000	0.7921	158 420	50 000	0.7921	39 605
NPV			162 510			179 865

Deduct *1 mark* for each error made, applying the own figure rule (error carried forward) where appropriate. For full marks, there should be a brief explanation of why Project Detroit is the relatively more attractive investment.

(b) Other information that could be considered include the following:

- Based on these figures, Project Detroit should be pursued as it has the higher NPV (by a value of \$17 355 or around 10.67% higher than Project Colorado).
- Although both projects yield the same absolute amount of net cash flow (each totalling \$550 000), Project Colorado does not see most of its returns until the final two years, i.e. when the money has lost much of its current value.
- The payback period for Project Detroit is shorter (just 2 years, compared to 2 years and 9 months for Project Colorado).
- The ARR is the same for both projects (because DCF are not considered in the calculation of the ARR).
- Other quantitative factors may also need to be considered, e.g. management preferences (gut feelings and intuition, rather than just quantitative analysis).

Award *1–2 marks* if the answer lacks detail and/or substance. The answer might be presented as a list of reasons, with little if any explanations.

Award *3–4 marks* if there is a good commentary of further information that should be considered before deciding which investment project to pursue, although there explanations lack depth/clarity in areas. Application of the stimulus material is shown.

Award *5 marks* for a thorough commentary of further information that should be considered before deciding which investment project to pursue, with appropriate explanations used to substantiate the answer. There is effective use of business management terminology and application of the stimulus material.

Question 3.8.4 Which project?

(a) Net cash flow is the difference between a firm's cash inflows and its cash outflows, per time period, as detailed on the firm's cash flow statement or cash flow forecast.

Award *1 mark* for a vague understanding of net cash flow or if only the formula is given.

Award *2 marks* if net cash flow is clearly understood with the appropriate use of business management terminology and/or examples.

(b) The question requires candidates to carry out a full quantitative investment appraisal:

	Project England	Project France
Payback period	2 years, 7 months	2 years
ARR	22.5%	20.83%
NPV	\$21 141	\$19 990

- Based on the financial data, Project France has a shorter payback (by just over 6 months), so if liquidity is an issue, then the firm should opt for this venture.
- However, the ARR is higher if the firm opts for Project England; although both are significantly higher than any return from savings at a bank.
- The NPV is higher for Project England (by \$1 241 or 6.23%).
- Overall, on financial grounds, Project England seems the slightly better option if the business is prepared to wait a further 6 months or so before it achieves payback.

- In addition to quantitative investment appraisal methods, qualitative factors could also be considered. For example, there could be some thought about organizational objectives and the competing views of different stakeholder groups.

Award 1–2 marks if the answer lacks coherence and shows limited understanding of investment appraisal methods.

Award 3–4 marks if there are errors in the quantitative investment appraisal. The analysis, if present, shows some understanding of the figures.

Award 5–7 marks if a full quantitative investment appraisal has been conducted, with some analysis of the findings. There may be one or two errors in the calculations. There is little, if any, consideration of qualitative factors that affect investment decisions.

Award 8–10 marks if a full quantitative investment appraisal is carried out with all necessary working shown. There is a thorough examination of the findings. Qualitative factors have also been considered. Evaluation has been attempted and there is evidence of critical thinking.

Question 3.8.5 Karoo Garments Limited

(a)

(i) Payback period (PBP)

Year	€'000	Cumulative cash flow
0	(230)	(230)
1	140	(90)
2	180	90
3	150	240
4	100	340

In year 2: $\text{€}90\,000 / (\text{€}180\,000/12) = 6$ months.

Payback period is **1 year and 6 months**

Award 1 mark if the PBP is correct but there is no working out shown or the correct procedure is used but with an incorrect answer.

Award 2 marks if the correct PBP is correctly calculated, with the working out shown.

(ii) Average rate of return (ARR):

Net cash flow = €570 000

Principal = €230 000

Total profit = €340 000

Annual profit = $\text{€}340\,000 \div 4$ years = €85 000 p.a.

ARR = $(\text{€}85\,000 \div \text{€}230\,000) \times 100$

= **36.96%**

Award 1 mark if the ARR is correct but there is no working out shown, or if the correct method is used but with an incorrect answer.

Award 2–3 marks if the correct ARR is given with the working out shown. For full marks, all steps in the working out should be shown.

(iii) Net Present Value (NPV):

Year	NCF (€'000)	Present Value(€)
0	(230)	(230 000)
1	140	129 626
2	180	154 314
3	150	119 070
4	100	<u>73 500</u>
		476 510
4	10	<u>7 350</u> (scrap value)
		483 860
		<u>230 000</u> (principal)
	NPV =	253 860

Award 1 mark if the NPV is correctly stated without any working out shown, or if minimal understanding is shown in the answer.

Award 2–3 marks if there is some understanding shown in the calculation of the NPV. Allow up to two errors at the lower end and up to one error for 3 marks. Award up to 3 marks if the scrap value is ignored, but the calculations are otherwise accurate.

Award 4 marks for accurately calculating the NPV, with full working out shown.

(b) Relevant financial factors could include:

- There is a relatively short payback period of 1 and a half years (especially as the project lasts for 4 years).
- The ARR of almost 37% is significantly higher than the base interest rate (at 8%).
- The NPV of €253 860 suggests that the 4-year project is profitable, i.e. it is a good investment.
- The predicted scrap value of machinery helps towards its replacement cost.
- However, Karoo Garments Limited should also consider the reliability of the forecasted net cash flows.

Non-financial factors that could be considered in the decision include:

- Continuous changes in the fashion industry in Europe mean that the versatility and flexibility of the machinery are important considerations.
- Staff retention is already a problem, so buying new machinery might either cause technological unemployment or improve labour productivity as workers operate with better machinery.
- Possible changes in the state of the economy and hence economic activity (the fashion industry is very reliant on a healthy economy).
- Consumer confidence levels, which can directly affect the demand for luxury clothing items.
- Changes in interest rates, which will change the value of quantitative investment appraisals, such as net present values.
- The opportunity cost of the €230 000 used for the investment, i.e. what else Karoo Garments Limited could have spent the money on instead.

Award 1–2 marks if the answer is vague, generalized or lacks substance.

Award 3–4 marks if the answer displays some understanding of relevant factors that link to improvements in productivity, although the factors may not be explicitly distinguished as numerical and non-numerical. There is limited, if any, application of the stimulus material.

Award 5–6 *marks* if there is consideration of relevant numerical and non-numerical factors in relation to Karoo Garments Limited’s investment decision. Appropriate business management terminology and examples are used.

Award 7–8 *marks* if there is a balanced discussion of relevant numerical and non-numerical factors in relation to whether Karoo Garments Limited should invest in the new machinery to improve its productivity. Appropriate business management terminology and examples are used. There is evidence of critical thinking and evaluation.
