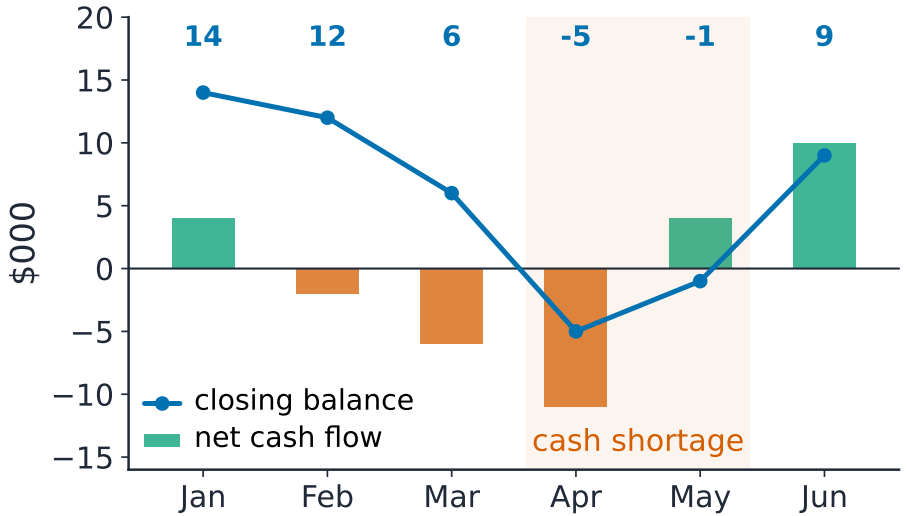
Exercise walk-through

3.5
Investment appraisal and budgets

International Baccalaureate · IB Diploma · Business Management · HL

Figure: Cash flow



- A six-month cash-flow forecast: bars of net **cash flow** and a line of closing balance that falls below zero in April and May before recovering in June
- Match each part of the diagram to the text.

Investment appraisal

- **Investment appraisal** checks whether a capital project is worth its cost.
- The repair business plans a third workshop.
- It costs 120,000 and should bring in a net **cash flow** of 40,000 a year for four years.
- *The third workshop pays back its 120,000 cost after exactly three years*

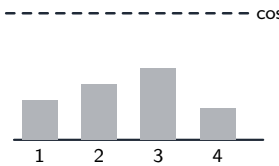
$$\text{ARR} = \frac{(\text{total returns} - \text{capital cost}) \div \text{years of use}}{\text{capital cost}} \times 100 = \frac{(160{,}000 - 120{,}000) \div 4}{120{,}000} \times 100 =$$

Budgets (HL)

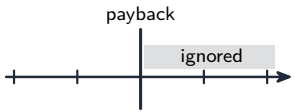
- A **budget** is a financial plan for a future period, such as next year's sales or costs for one workshop.
- A forecast predicts what will happen; a **budget** sets a target for what should happen.
- Budgets help a business plan, share out resources, give managers clear targets, and check results.
- A **cost centre** is a part of the business whose costs are recorded, such as the repair business's IT department.

Exercises 2.1·2.2

2.1 Define **payback period**. [2]

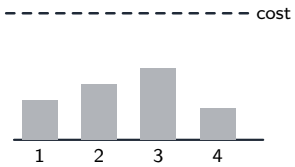


2.2 State **two** limitations of the payback method. [2]



Exercises 2.1·2.2

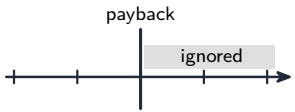
2.1 Define **payback period**. [2]



2.1

the length of time; for the net cash flows from an investment to repay its initial cost

2.2 State **two** limitations of the payback method. [2]



2.2

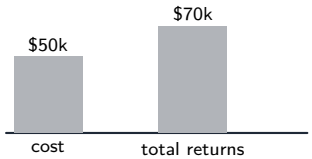
any two: ignores cash flows after the payback point; ignores the time value of money; does not measure profitability; relies on forecasts

Exercises 2.3·2.4

2.3 Project A costs \$50,000. Its net cash flows are \$15,000, \$20,000, \$25,000 and \$10,000 in years 1–4. Calculate its payback period in years and months. [4]

year	0	1	2	3	4
net cash flow (\$000)	−50	15	20	25	10

2.4 Calculate the average rate of return (ARR) for project A. [2]



Exercises 2.3·2.4

2.3 Project A costs \$50,000. Its net cash flows are \$15,000, \$20,000, \$25,000 and \$10,000 in years 1–4. Calculate its payback period in years and months. [4]

year	0	1	2	3	4
net cash flow (\$000)	−50	15	20	25	10

2.3

cumulative: 15 000, 35 000 after 2 years; still needed 15 000 of year 3's 25 000; $15\,000 \div 25\,000 \times 12 = 7.2$ months; payback = **2 years 7 months**

2.4 Calculate the average rate of return (ARR) for project A. [2]



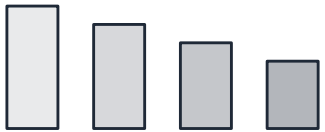
2.4

total net cash flows = 70 000; $(70\,000 - 50\,000) \div 4 = 5\,000$ per year; ARR = $5\,000 \div 50\,000 \times 100 = \mathbf{10}\%$

Exercise 2.5

2.5 Using discount factors at 10% of 0.909, 0.826, 0.751 and 0.683 for years 1–4, calculate the net present value of project A. [4]

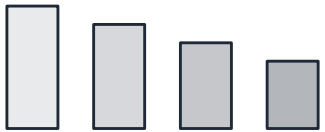
later cash is worth less today



Exercise 2.5

2.5 Using discount factors at 10% of 0.909, 0.826, 0.751 and 0.683 for years 1–4, calculate the net present value of project A. [4]

later cash is worth less today



2.5

present values: 13 635, 16 520, 18 775, 6 830; total = 55 760; NPV = 55 760 − 50 000 = \$**5 760** (positive)

Exercise 3.1

3.1 Peak Print can buy one of two machines, each costing $50,000. Machine A (project A above) is cheaper to run but produces lower quality. Machine B's net cash flows are $10,000, $15,000, $25,000 and $30,000 in years 1–4; it is more automated, so two jobs would be cut. Peak Print has a weak cash position.

Using payback, ARR and other information, recommend which machine Peak Print should buy. [10]

$000	0	1	2	3	4
machine A	−50	15	20	25	10
machine B	−50	10	15	25	30

Exercise 3.1

3.1 Peak Print can buy one of two machines, each costing $50,000. Machine A (project A above) is cheaper to run but produces lower quality. Machine B's net cash flows are $10,000, $15,000, $25,000 and $30,000 in years 1–4; it is more automated, so two jobs would be cut. Peak Print has a weak cash position.

Using payback, ARR and other information, recommend which machine Peak Print should buy. [10]

$000	0	1	2	3	4
machine A	−50	15	20	25	10
machine B	−50	10	15	25	30

3.1

award up to [10]: machine A: payback 2 years 7 months, ARR 10%; machine B: cumulative 10 000, 25 000, 50 000: payback exactly 3 years; ARR = (80 000 − 50 000) ÷ 4 ÷ 50 000 × 100 = 15%; A pays back sooner: important given the weak cash position; B is more profitable overall; non-financial: B cuts two jobs: lower morale, redundancy costs, image; B's higher quality may win customers; forecasts for later years are less certain; judgement, e.g. A if cash is the priority, B if long-term profit is; recommendation justified by the case

Exercise 3.2 (a)

3.2 Peak Print's marketing department has the budget and actual figures shown for last quarter ($000).

(a) Calculate the variance for each item and state whether it is favourable or adverse. [3]

$000	budget	actual
sales revenue	120	110
materials	40	36
wages	30	33

Exercise 3.2 (a)

3.2 Peak Print's marketing department has the budget and actual figures shown for last quarter ($000).

(a) Calculate the variance for each item and state whether it is favourable or adverse. [3]

$000	budget	actual
sales revenue	120	110
materials	40	36
wages	30	33

(a) sales revenue: $110 - 120 = -10$, adverse; materials: 36 against 40, 4 below budget, favourable; wages: 33 against 30, 3 above budget, adverse

Exercise 3.2 (b)

3.2 Peak Print's marketing department has the budget and actual figures shown for last quarter ($000).

(b) Distinguish between a cost centre and a profit centre, with an example from Peak Print. [3]

Exercise 3.2 (b)

3.2 Peak Print's marketing department has the budget and actual figures shown for last quarter ($000).

(b) Distinguish between a cost centre and a profit centre, with an example from Peak Print. [3]

(b) cost centre: a part of the firm where costs are recorded but no revenue is earned, e.g. the HR or maintenance department; profit centre: a part where both costs and revenues are recorded, so profit can be measured, e.g. a branch or a product line; correct examples from the case