

# Allowing for inflation and taxation

[Finance](#), [Financial Analysis](#)



ALLOWING FOR INFLATION AND TAXATION

Q1. Ethan Co is evaluating Project Z, which requires an initial investment of \$45,000. Expected net cash flows are \$16,000 per annum for two years at today's prices. However, these are expected to rise by 3.7% pa because of inflation. The firm's money cost of capital is 11%. Find the NPV by discounting money cash flows. (MCQ)

Years	Cash flows (\$)	Money cash flows (\$)
0	(45,000)	(45,000)
1	16,000	$16,000 \times 1.037$
2	16,000	$16,000 \times (1.037)^2$

Options: (11,202) \$(13,000) \$16,079 \$(16,079) (2 marks)

Q2. Philip Co.'s selling prices ; variable costs of construction are \$200,000 ; \$100,000 respectively and are in current price terms before allowing inflation of 3%/annum on selling price ; 4%/annum on variable cost. Fixed cost for the year is \$70,000 before inflation of 2%/annum. Calculate the taxable cash flows for year 2 and fill in the table given below. (FIB)

Year	Selling price (\$)	Variable cost (\$)	Fixed cost (\$)
0	200,000	100,000	70,000
1	206,000	104,000	71,400
2	212,200	108,160	72,828

Options: 3714752222500\$ (2 marks)

Q3. A project has the following cash flows before allowing for inflation. The company's money discount rate is 13.5%. The general rate of inflation is expected to remain constant at 5%. Evaluate the NPV by using real cash flows and real discount rates (MCQ)

Year	Cash flow (\$000)
0	(600)
1	240
2	500
3	31,000
4	36,300
5	51,000
6	53,500

Options: (2 marks)

Q4. GW Co. is expecting a net of tax receipt of \$8,000 (in real terms) in one year's time. If GW Co. expects inflation to increase, what impact will this have on the present value of that receipt? (MCQ)

Options: Reduce Nil Cannot say Increase (2 marks)

Q5. Which of the following about the inflation values included in the nominal cost of capital is correct? The expected general inflation suffered by the investors  
The previous general inflation suffered by the investors  
It is specific ; historic to the business  
It is expected ; specific to the business(2 marks)

Q6. DC Co. has a 31st December year end ; pays corporation tax at a rate of 24%, 12 months after the end to which the cash flow relates. It can claim tax allowable depreciation at a rate of 25% reducing balance. It pays \$3m for a machine on 31st December 20X1. DC Co.'s cost of capital is 10%. At cost of capital 10%, what is the present value on 31st December 20X1 of the benefit of the first portion of tax allowable depreciation? (MCQ)\$750, 000\$163, 620\$180, 000\$148, 680(2 marks)

Q7. Ghost Co. needs to have \$400, 000 working capital immediately for the three-year project. The amount will stay constant in real terms. Inflation is running at 7% per annum, and Ghost Co.'s money cost of capital is 14%. What will be the net present value of working capital? Give answer to the nearest number. (FIB)3708407112000\$ (2 marks)

Q8. The investment is \$200, 000 ; the capital allowances will be calculated on the basis of 25% reducing balance basis. The tax rate is 27% which will be paid in arrears. Calculate the capital allowances for year three when the project life is four years? (MCQ)\$13, 500\$10, 125\$7, 594\$22, 781(2 marks)

Q9. Joseph a project manager plans to invest \$500, 000 in a new project. His company pays a corporation tax of 28% per annum with tax liability settled in the year in which it arises. The tax allowable depreciation can be claimed

on the cost of the investment on a straight line basis over the projects life of four years. What will be the balancing charge/allowance for the company?  
(MCQ) \$125, 000 (Balancing Charge)\$360, 000 (Balancing Allowance)\$360, 000 (Balancing Charge)\$140, 000 (Balancing Allowance)(2 marks)

Q10. The following information relates to two machines: Machine 1 Machine 2  
Investment \$100, 000 \$50, 000Tax allowable depreciation 25% Reducing Balance 25% Reducing BalanceProject Life 2 years 2 yearsScrap value \$50, 000 \$50, 000Capital Allowance start Year 0 Year 1The corporation tax rate is 30%. State whether Balancing Allowance or Charge will arise for Machine 1 ; Machine 2. (MCQ)M1 Balancing Charge / M2 Balancing AllowanceM1 Balancing Allowance / M2 Balancing ChargeM1 ; M2 Balancing ChargeM1 ; M2 Balancing Allowance(2 marks)

Q11. A project has the following projected cash inflows: Year 1 \$50, 000Year 2 \$75, 000Year 3 \$105, 000Working capital is required to be in place at the start of each year equal to 5% of the cash inflow for that year. Cost of capital is 8%. What is the present value of the working capital?  
(FIB)3714751905000\$ (2 marks)

Q12. A company's expected sales for the new venture to be 10, 000 units per year. The selling price is expected to be \$5 per unit in the first year, inflating by 4% per year over the three year life of the project. Working capital equal to 8% of annual sales is required and needs to be in place at the start of each year. Calculate the working capital increment needed in year 2? (MCQ) \$(4, 160)\$(160)\$4, 480\$0(2 marks)

Q13. Tec Co. is planning to invest in a three-year project having following details: Revenue for year 1 \$150, 000, year 2 \$175, 000 & year 3 \$120, 000. 12% of sales will be required as working capital at the start of each year end. Calculate incremental working capital for year three? (FIB)3714752222500\$ (2 marks)

Q14. Working capital of each year is 3% of sales which will be required at the start of each year. The sales will inflate by 2% per year and the sales are as follows: Year 1 \$300, 000Year 2 \$445, 000Year 3 \$267, 700Calculate Present value using cost of capital of 4%. (MCQ)\$(-4, 271)\$5, 023\$7, 281\$(1, 147)(2 marks)

#### ALLOWING FOR INFLATION AND TAXATION (ANSWERS)

Q1. DMoney cash flows (\$) Discount rate (11%) Present value (\$) (45, 000) 1 (45, 000)16, 592 0. 901 14, 95017, 206 0. 812 13, 971NPV (16, 079)

Q2. \$31, 000Costs Inflation Year 2 (\$000)Sales Revenue  $200 \times (1. 03)^2$  212Variable Cost  $100 \times (1. 04)^2$  (108)Fixed Cost  $70 \times (1. 02)^2$  (73)Taxable cash flows 31

Q3. CReal rate:  $[(1+ 13. 5\%) \div (1+ 5\%)] - 1 = 8\%$ Year Cash flow (\$000) Discount factor 8% Present value (\$000)0 (600) 1 (600)1 240 0. 926 2222 500 0. 857 429NPV 51

Q4. BHigh expectation of inflation will have following effects: Higher nominal discount rateHigh expected nominal cash flowExact cancellation of each other

Q5. A The inflation included in the nominal cost of capital is required by the investors to compensate them for the loss of general purchasing power their money will suffer in the future as a result of investing in the business.

Q6. \$163, 620 The asset is purchased on 31st December 20X1, so the first portion of tax allowable depreciation is accounted for on the date (as this the year-end). The amount of depreciation would be  $\$3m \times 25\% = \$750,000$ . Claiming this allowance will save  $(\$750,000 \times 24\%) = \$180,000$  tax when it is paid one year in arrears hence the  $\$180,000 \times 0.909$  (DF 10%) = \$163, 620

Q7. \$ - 138, 472 The working capital required will inflate year on year, then the inflated amount will be returned at the end of the project. Year Cash flow Increment (7%) Discount Factor (14%) Present Value

0	(400,000)	(400,000)	
1	(400,000)	1 428,000	(28,000) 0.877 (24,556)
2	457,960	(29,960)	0.769 (23,039)
3	0 457,960	0.675	309,123

NPV -138, 472

Q8. C Year Working Capital Allowance Tax Benefit

1	(200,000 × 25%)	50,000
2	(150,000 × 25%)	37,500
3	(112,500 × 25%)	28,125
4	(84,375 × 25%)	21,094

Balancing Allowance/Charge (Year 4)  $200,000 - (50,000 + 37,500 + 28,125) = 84,375$   
(Balancing allowance)

Q9. B  $\$500,000 \div 4 \text{ years} = \$125,000$   
 $\$125,000 \times 28\% \text{ (tax rate)} = \$35,000$   
 $\$35,000 \times 4 \text{ years} = \$140,000$   
 $\$500,000 - \$140,000 = \$360,000$   
 (Balance Allowance)

Q10. B Machine 1 Year 0 100,000 × 25% 25,000 × 30% 7,500 175,000 × 25% 18,750 × 30% 5,625 100,000 - (25,000 + 18,750) = 56,250 - 50,000 = 6,250 6,250 × 30% 1,875 (B. A) Machine 2 Year 0 150,000 × 25% 12,500 × 30% 3,750 250,000 - (12,500) = 37,500 37,500 - 50,000 = (12,500) (12,500) × 30% (3,750) (B. C)

Q11. \$ -868 Year Cash flow (\$) Increment (5%) Discount factor (8%) Present value (\$) 0 2,500 (2,500) 1 (2,500) 1 3,750 (1,250) 0.926 (1,158) 2 5,250 (1,500) 0.842 (1,263) 3 0 5,250 0.772 4,053 -868

Q12. B Year Selling price inflation (4%) Working capital (\$) (8%) Increment (5%) 0 4,160 (4,160) 1 \$5.2 × 10,000 = 52,000 4,320 (160) 2 \$5.4 × 10,000 = 54,000 4,480 (160) 3 \$5.6 × 10,000 = 56,000 4,480

Q13. \$14,400 Year 0 1 2 3 12% of Sales revenue \$18,000 \$21,000 \$14,400 Required WC at end 18,000 21,000 - 18,000 21,000 - 14,400 Incremental (18,000) (3,000) 6,600 14,400

Q14. D Year Inflated Sales (\$) Working Capital (\$) Incremental WC (\$) Discount Factor (4%) Present value (\$) 0 9,180 (9,180) 1 (9,180) 1 306,000 13,620 (4,440) 0.962 (4,271) 2 454,000 8,190 5,430 0.925 5,023 3 273,000 8,190 0.889 7,281 NPV (1,147)