
Answers

1 The case study can be approached in various ways. Below are some calculations and points that may have been made by candidates. However, they should only be regarded as indicative.

(a) (i) In answering this part of the question the following assumptions have been made:

- Ancillary revenues are in line with those achieved in Western Europe over the past three years (i.e. 10% of revenues from the sale of seats).
- The operating profit margin is in line with the average of those achieved over the past three years (i.e. 25% of total revenues).
- There are 365 days in each year (i.e. no leap years).
- The effective tax rate is 20% of the operating profits.
- The WACC is 10% (i.e. based on the consensus view).

Initial workings

1. Estimated revenues can be deduced by reference to the load factors, number of trips per day and average revenue figures provided.

	2005	2006	2007	2008	2009	2010	2011	2012– 2024
Plane seating capacity	189	189	189	189	189	189	189	189
No. of flights	4	4	4	4	4	4	6	6
Daily capacity	756	756	756	756	756	756	1,134	1,134
Annual capacity per plane	275,940	275,940	275,940	275,940	275,940	275,940	413,910	413,910
Fleet capacity	5,518,800	5,518,800	5,518,800	5,518,800	5,518,800	5,518,800	8,278,200	8,278,200
Load factor (%)	65	68	70	72	72	74	76	78
No. of seats sold	3,587,220	3,752,784	3,863,160	3,973,536	3,973,536	4,083,912	6,291,432	6,456,996
Average revenue per seat (£)	30	32	35	35	40	42	44	48
Total revenue (£m)	107.6	120.1	135.2	139.1	158.9	171.5	276.8	309.9

2. Forecast operating profits for the proposal can be produced in order to find the tax payable, which is 20% of this figure:

	2005	2006	2007	2008	2009	2010	2011	2012– 2024
	£m	£m	£m	£m	£m	£m	£m	£m
Seat revenue	107.6	120.1	135.2	139.1	158.9	171.5	276.8	309.9
Ancillary revenue	10.8	12.0	13.5	13.9	15.9	17.2	27.7	31.0
	<u>118.4</u>	<u>132.1</u>	<u>148.7</u>	<u>153.0</u>	<u>174.8</u>	<u>188.7</u>	<u>304.5</u>	<u>340.9</u>
Operating margin	29.6	33.0	37.2	38.3	43.7	47.2	76.1	85.2
Corp. tax (20%)	<u>5.9</u>	<u>6.6</u>	<u>7.4</u>	<u>7.7</u>	<u>8.7</u>	<u>9.4</u>	<u>15.2</u>	<u>17.0</u>

3. Depreciation charges over 20 years = $(\$35m - \$10m - \$5m)/20 = \$1.0m = £0.6m$
 Additional depreciation charges over Years 1–8 = $(\$10m/8) = \$1.25m = £0.8m$
 Depreciation charges over Years 1–8 = $\$2.25m = £1.4m$
 Total depreciation charge for fleet 20 x £1.4m Yrs 1–8 = £28m
 Total depreciation charge for fleet 20 x £0.6m Yrs 9–20 = £12m

4. Aircraft cost = (\$35m x 20) = \$700m = £437.5m

Net present value calculations

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013– 2024
		£m	£m	£m	£m	£m	£m	£m	£m	£m
Operating margin		29.6	33.0	37.2	38.3	43.7	47.2	76.1	85.2	85.2
Add Depr'n		28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	12.0
		57.6	61.0	65.2	66.3	71.7	75.2	104.1	113.2	97.2
Taxation		(5.9)	(6.6)	(7.4)	(7.7)	(8.7)	(9.4)	(15.2)	(17.0)	(17.0)
		51.7	54.4	57.8	58.6	63.0	65.8	88.9	96.2	80.2
Capex	(145.8)	(145.8)	(145.8)							
Cash flows	(145.8)	(94.1)	(91.4)	57.8	58.6	63.0	65.8	88.9	96.2	80.2
Discount factor	1.0	0.909	0.826	0.751	0.683	0.621	0.565	0.513	0.467	3.18*
NPV	(145.8)	(85.5)	(75.5)	43.4	40.0	39.1	37.2	45.6	44.9	255.0
	<u>198.4</u>									

* This is the sum of the discount factors for each year from 2013–2024

Payback period calculations

	2004	2005	2006	2007	2008	2009	2010	2011
	£m	£m	£m	£m	£m	£m	£m	£m
Cash flows	(145.8)	(94.1)	(91.4)	57.8	58.6	63.0	65.8	88.9
Cumulative cash flows	(145.8)	(239.9)	(331.3)	(273.5)	(214.9)	(151.9)	(86.1)	2.8

The payback period is approximately seven years

- (ii) An alternative approach to calculating the NPV is a 'top down' approach that uses data concerning population change and market share. The revenue from seats is calculated as follows:

	2005	2006	2007	2008	2009	2010	2011	2012
Eastern Europe population (millions)	165.3	164.5	163.1	162.2	161.8	160.5	158.4	158.1
Low-cost flights per capita	0.11	0.13	0.17	0.20	0.21	0.25	0.29	0.31
No. of flights (millions)	18.18	21.38	27.73	32.44	33.98	40.12	45.94	49.01
Market share (%)	20.0	18.0	15.0	13.0	12.0	11.0	13.0	13.0
Barra flights (millions)	3.64	3.85	4.16	4.22	4.08	4.41	5.97	6.37
Average revenue per seat (£)	30	32	35	35	40	42	44	48
Total seat revenue	109.2	123.2	145.6	147.7	163.2	185.2	262.7	305.8

Forecast operating profits are again prepared to calculate the tax payable as follows:

	2005	2006	2007	2008	2009	2010	2011	2012– 2024
	£m	£m	£m	£m	£m	£m	£m	£m
Seat revenue	109.2	123.2	145.6	147.7	163.2	185.2	262.7	305.8
Ancillary revenue	10.9	12.3	14.6	14.8	16.3	18.5	26.3	30.6
	<u>120.1</u>	<u>135.5</u>	<u>160.2</u>	<u>162.5</u>	<u>179.5</u>	<u>203.7</u>	<u>289.0</u>	<u>336.4</u>
Operating margin	30.0	33.9	40.1	40.6	44.9	50.9	72.3	84.1
Corp. tax (20%)	6.0	6.8	8.0	8.1	9.0	10.2	14.5	16.8

Net present value calculations

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013– 2024
		£m	£m	£m	£m	£m	£m	£m	£m	£m
Operating margin		30.0	33.9	40.1	40.6	44.9	50.9	72.3	84.1	84.1
Add Depr'n		28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	12.0
		58.0	61.9	68.1	68.6	72.9	78.9	100.3	112.1	96.1
Taxation		(6.0)	(6.8)	(8.0)	(8.1)	(9.0)	(10.2)	(14.5)	(16.8)	(16.8)
		52.0	55.1	60.1	60.5	63.9	68.7	85.8	95.3	79.3
Less Capex	(145.8)	(145.8)	(145.8)							
Cash flows	(145.8)	(93.8)	(90.7)	60.1	60.5	63.9	68.7	85.8	95.3	79.3
Discount factor	1.0	0.909	0.826	0.751	0.683	0.621	0.565	0.513	0.467	3.18
NPV	(145.8)	(85.3)	(74.9)	45.1	41.3	39.7	38.8	44.0	44.5	252.2
	<u>199.6</u>									

Payback period calculations

	2004	2005	2006	2007	2008	2009	2010	2011
	£m	£m	£m	£m	£m	£m	£m	£m
Cash flows	(145.8)	(93.8)	(90.5)	60.1	60.5	63.9	68.7	85.8
Cumulative cash flows	(145.8)	(239.6)	(330.1)	(270.0)	(209.5)	(145.6)	(76.9)	8.9

The payback period is, once again, approximately seven years.

(iii) Sensitivity analysis

Calculations using a WACC of 8% and 11% can be used for the NPV calculations set out in (i) and (ii) above. To illustrate the sensitivity of the plans to a change in WACC, a discount rate of 11% is applied to the NPV calculations in (ii), (i.e. the one that provides the lower NPV figure).

Cash flows	(145.8)	(93.8)	(90.5)	60.1	60.5	63.9	68.7	85.8	95.3	79.3
Discount factor	1.0	0.901	0.812	0.731	0.659	0.594	0.535	0.482	0.434	2.818*
NPV	(145.8)	(84.5)	(73.4)	43.9	39.9	38.0	36.8	41.4	41.4	223.5
	<u>161.2</u>									

* This is the sum of the discount factors for each year from 2013–2024.

(b) Comments may include the following:

- The fact that the NPVs of each approach are similar may give some confidence in their reliability.
- The need to undertake 'reality checks' for certain key estimates (e.g. average seat prices) that have not been validated using the dual approach to calculating NPV.
- The sensitivity of the calculations to changes in WACC.
- The relatively long payback period may be used as a rough guide to the riskiness of the proposals.

(c) Further information on the following issues may be required:

- The extent to which the plans fit with the overall strategy of the business.
- The ability of the management team to deal with such a large investment programme.
- The ability of the existing infrastructure (IT, qualified staff, etc) to cope with the investment programme.
- The availability of qualified pilots that have been trained to fly the new aircraft.
- The availability of suitable infrastructure at Eastern European airports to support the needs of the company and its passengers.
- Possible regulatory impediments to the expansion programme.
- The ways in which the expansion programme will be monitored and controlled.

(d) There are many risks relating to the proposed expansion plan that could be identified and assessed. These include:

- *Competition risk* The company will almost certainly face competition from other low-cost airlines. In addition, major airlines may copy the pricing methods of the low cost carriers. These airlines have the advantage over Barra Airways plc of access to primary airports, although they are also burdened with high costs. Charter operators and regional carriers may also enter this new market as low-cost carriers, although their success in this role within Western Europe has not been great. Finally, high-speed passenger trains may continue to expand their routes.
- *Exchange rate risk* Fuel costs, some maintenance costs and the purchase price of the new fleet of aircraft are denominated in US dollars. In addition, fares will be received in the local currencies. Any change in sterling against these currencies could have a significant impact on profits.
- *Aircraft risk* The company will depend on only one type of aircraft to service its new routes. The 737-800 is a new aircraft and any design problems that may emerge with the aircraft could lead to the whole fleet being grounded and a loss of confidence among passengers.
- *Accident risk* Although a single accident may not have a significant effect on the prospects of the company, a series of accidents could have a devastating impact.
- *Fuel prices* Fuel prices can be volatile and are a significant expense for airlines. For the year to 30 September 2004, fuel prices represented 21% of total costs.
- *International events* In recent years terrorist attacks, the Gulf War and the SARS virus have had a major impact on the revenues and profits of airline companies.
- *Key personnel* It is not clear from the case study whether there is strength and depth within the management team. It seems that Alec Kintyre is an important figure within the team and the business may be vulnerable to changes in key personnel.
- *Economic weakness* Eastern European countries may experience problems over the short-to-medium term as they continue their transition towards market-based economies. This may have a significant impact on passenger numbers.
- *Reputation risk* The failure of the proposed plans would severely damage the good reputation of the company within the investment community. This may have an adverse effect on future financing plans as well as on share price.
- *Internet risk* At present, more than 90% of bookings are on line. Problems with the system could make it difficult for passengers to book seats. There may also be security risks associated with on-line bookings.

Some assessment of each of the risks identified is required.

- (e) This part of the question requires classification of the risks identified into 'risk families', according to their level of frequency and severity of loss. Policies that may be used to deal with the various forms of risk may include:
- Building safeguards into the operational processes
 - Transferring the risk to another party through insurance or through a change in contractual terms.
 - Transferring the risk through hedging instruments
 - Transferring part of the risk to another party through a joint venture
 - Assigning responsibility for managing the risk to the most competent managers
 - Avoiding the risk by taking certain decisions or actions
 - Accepting the risk

- (f) The traditional view of the internal audit department is that of a 'police force' informing management about what should have been done. It is not unusual for the role of this department to be confined to checking accounting transactions and controls, as is the case in Barra Airways plc. Recent developments in corporate governance, however, has led to a review of this traditional role. A more effective role for the internal audit department is to work in partnership with management over the whole range of business operations.

The department can play a vital role in the identification and evaluation of risk by:

- providing assurance to managers on the effectiveness of the risk management procedures that are in place
- providing advice on the ways in which risk management systems and procedures may be improved
- promoting risk management systems within the company by providing training programmes or relevant information to employees.
- identifying risk areas where no risk management systems currently exist

The internal audit department may be able to take a more objective view of the risks facing the business than that provided by line managers. For this reason, the views of the department may be invaluable to the Board of Directors.

In order to play this enhanced role, the internal audit department must be properly resourced. The staff within the internal audit department must be well qualified with good business awareness. They must also be capable of communicating effectively with managers and must be able to work as members of a management team.

	Marks
1 (a) (i) 6 marks seat revenue, 4 marks tax payments, 4 marks other incremental cash flows, 2 marks NPV calculations, 2 marks payback calculations	18
(ii) 6 marks seat revenue, 4 marks tax payments, 4 marks other incremental cash flows, 2 marks NPV calculations, 2 marks payback calculations	18
(iii) 3 marks for 8%, 3 marks for 11% WACC calculations	6
(b) 2 marks per point	6
(c) 1 mark per point	8
(d) 2 marks for identifying and assessing each risk	16
(e) 6 marks risk map, 12 marks policies	18
(f) 2 marks per point	10
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