

# Financial Modeling Fundamentals – Module 05

## More Advanced 3-Statement Projections – Quiz Questions

1. Consider the revenue projections you have built for a UK-based airline company, as shown below:

Revenue Assumptions:	Units	Projected								
		2H14	1H15	2H15	1H16	2H16	1H17	2H17	1H18	2H18
Baseline Available Seat Kilometers (ASK):	Millions	45,862	35,034	48,155	36,436	50,081	37,711	51,834	38,842	53,389
Post-Toggle Available Seat Kilometers (ASK):	Millions	45,862	35,034	48,155	36,436	50,081	37,711	51,834	38,842	53,389
Baseline ASK YoY Growth Rate:	%	6.7%	5.0%	5.0%	4.0%	4.0%	3.5%	3.5%	3.0%	3.0%
Post-Toggle ASK YoY Growth Rate:	%	6.7%	5.0%	5.0%	4.0%	4.0%	3.5%	3.5%	3.0%	3.0%
Average Sector Length:	Kilometers	1,137	1,079	1,142	1,085	1,148	1,090	1,154	1,096	1,160
YoY Growth Rate:	%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Seats Flown:	Millions	40.3	32.5	42.2	33.6	43.6	34.6	44.9	35.5	46.0
Baseline Load Factor:	%	89.6%	87.3%	89.6%	87.3%	89.6%	87.3%	89.6%	87.3%	89.6%
Post-Toggle Load Factor:	%	89.6%	87.3%	89.6%	87.3%	89.6%	87.3%	89.6%	87.3%	89.6%
Passengers:	Millions	36.2	28.3	37.8	29.3	39.1	30.2	40.3	31.0	41.3
Seat Revenue per Seat:	£ per Seat	73.08	56.42	77.10	59.52	80.57	62.20	83.79	64.69	86.73
Non-Seat Revenue per Seat:	£ per Seat	0.98	0.92	0.98	0.92	0.98	0.92	0.98	0.92	0.98
Baseline Seat Revenue per Passenger:	£ per Pass.	81.53	64.59	86.01	68.15	89.88	71.21	93.47	74.06	96.75
Post-Toggle Seat Revenue per Passenger:	£ per Pass.	81.53	64.59	86.01	68.15	89.88	71.21	93.47	74.06	96.75
Baseline Seat Revenue per Pass. YoY Growth Rate:	%	6.5%	6.5%	5.5%	5.5%	4.5%	4.5%	4.0%	4.0%	3.5%
Post-Toggle YoY Growth Rate:	%									
Non-Seat Revenue per Passenger:	£ per Pass.	1.09	1.05	1.09	1.05	1.09	1.05	1.09	1.05	1.09
Seat Revenue:	£m	2,948	1,831	3,250	1,999	3,514	2,152	3,764	2,293	3,993
Non-Seat Revenue:	£m	40	30	41	31	43	32	44	32	45
<b>Total Revenue:</b>	£m	<b>£ 2,988</b>	<b>£ 1,861</b>	<b>£ 3,291</b>	<b>£ 2,030</b>	<b>£ 3,557</b>	<b>£ 2,183</b>	<b>£ 3,808</b>	<b>£ 2,326</b>	<b>£ 4,038</b>

**What are the PRIMARY differences in a quarterly or half-year 3-statement model like this one compared to a standard annual model?**

- a. You should use Year-over-Year (YoY) growth rates for revenue drivers in interim periods (instead of sequential Quarter-over-Quarter or Half-Year-over-Half-Year growth rates) to account for seasonality.
- b. You always need to incorporate the “toggles” shown above, whereas they’re optional in an annual model.
- c. Instead of projecting each quarter or half year separately, it’s better to forecast everything on an annual basis and then allocate the item to the interim periods.
- d. If it’s a seasonal business, you may make very different assumptions for growth rates and margins, even in quarters or half-year periods of the same year.

2. Consider this same company's Cash Flow Statement, as shown in the screenshot below:

<b>Cash flows from operating activities</b>		
Cash generated from operations	<b>788</b>	494
Ordinary dividends paid	<b>(85)</b>	(46)
Special dividends paid	<b>–</b>	(150)
Net interest and other financing charges paid	<b>(22)</b>	(9)
Tax paid	<b>(65)</b>	(28)
<b>Net cash generated from operating activities</b>	<b>616</b>	261
<b>Cash flows from investing activities</b>		
Purchase of property, plant and equipment	<b>(400)</b>	(379)
Proceeds from sale of property, plant and equipment	<b>1</b>	1
Purchase of intangible assets	<b>(21)</b>	(13)
Redemption of loan notes	<b>4</b>	2
<b>Net cash used by investing activities</b>	<b>(416)</b>	(389)
<b>Cash flows from financing activities</b>		
Net proceeds from issue of ordinary share capital	<b>1</b>	2
Purchase of own shares for employee share schemes	<b>(26)</b>	(15)
Repayment of bank loans	<b>(273)</b>	(305)
Repayment of capital elements of finance leases	<b>(10)</b>	(9)
Net proceeds from sale and operating leaseback of aircraft	<b>316</b>	–
Net decrease in money market deposits	<b>41</b>	55
Decrease/(increase) in restricted cash	<b>148</b>	(37)
<b>Net cash generated from/(used by) financing activities</b>	<b>197</b>	(309)
Effect of exchange rate changes	<b>(29)</b>	(18)
<b>Net increase/(decrease) in cash and cash equivalents</b>	<b>368</b>	(455)
Cash and cash equivalents at beginning of year	<b>645</b>	1,100
<b>Cash and cash equivalents at end of year</b>	<b>1,013</b>	645

**As the Cash Flow Statement is currently set up, it is difficult to model because it starts with Cash Flow from Operations and then lists dividends, interest, and taxes. It is therefore quite different from a traditional Cash Flow Statement.**

**Which of the following adjustments would make it EASIER to model this company's financial statements over a 5-year period?**

- a. Make the Cash Flow Statement start with Net Income, or Profit After Taxes, by finding the company's reconciliation between Cash Generated from Operations and Operating Income and then adjusting for interest and taxes.
- b. Reclassify dividends to the Cash Flow from Financing section.
- c. Show non-cash adjustments such as Depreciation & Amortization and Stock-Based Compensation explicitly on the Cash Flow Statement.
- d. Show the changes in Operating Assets and Liabilities as explicit line items on the Cash Flow Statement.
- e. All of the above.

3. You are working on a 3-statement model for this same airline company, and you decide to project the number of aircraft and the fleet composition separately.

Your co-worker sees this and says that you are wasting time because these assumptions will barely make a difference next to the direct revenue and expense assumptions.

Which of the following answer choices represent the BEST ways to respond to your co-worker?

- a. We need this level of detail because the number of aircraft of each type will DIRECTLY influence fuel spending and other expenses.
  - b. More aircraft are required if the company's Available Seat Kilometers (ASK) or Available Seat Miles (ASM) increase, and so we need to link those figures.
  - c. More aircraft also result in higher CapEx; if we didn't track the number of aircraft, we could not link CapEx to the number of aircraft purchased.
  - d. If we did not project the aircraft fleet composition, it would be nearly impossible to make estimates for the operating lease and capital lease (AKA finance lease) expenses each year.
4. How would the Balance Sheet and Cash Flow Statement drivers and projections differ in an interim 3-statement projection model compared to the same drivers and projections in an annual model?
- a. You would not link items like Accounts Receivable or Prepaid Expenses to revenue and expense line items on the interim Income Statement since they trend with annual revenue and expenses, not interim-period revenue and expenses.
  - b. You may still link items such as Accounts Receivable and Prepaid Expenses to Income Statement line items, but you'll have to annualize the interim figures or use the LTM numbers instead.
  - c. If the company only discloses an item on an annual basis, you may have to divide it into the appropriate figures for the interim periods (e.g., take annual amortization and divide it by 2 to get the half-year figures).
  - d. It's less justifiable to hold percentages such as Receivables % LTM Revenue constant in the projection period since the business may be seasonal.
  - e. You may have to reflect that the company only pays out dividends in certain interim periods, or that it defers taxes in certain periods and then pays them in cash later on.

5. Consider this airline company's annual Income Statement projections, as shown in the screenshot below:

Income Statement:	Units	Historical			Projected				
		FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18
<b>Revenue:</b>									
Seat Revenue:	£m	£ 3,389	£ 3,794	£ 4,194	£ 4,622	£ 5,081	£ 5,514	£ 5,916	£ 6,286
Non-Seat Revenue:	£m	63	60	64	68	71	74	76	78
<b>Total Revenue:</b>	£m	<b>3,452</b>	<b>3,854</b>	<b>4,258</b>	<b>4,690</b>	<b>5,152</b>	<b>5,587</b>	<b>5,991</b>	<b>6,364</b>
YoY Revenue Growth:	%	13.4%	11.6%	10.5%	10.1%	9.9%	8.4%	7.2%	6.2%
<b>Operating Expenses:</b>									
Fuel:	£m	(917)	(1,149)	(1,182)	(1,268)	(1,349)	(1,649)	(1,712)	(1,728)
Airports and Ground Handling:	£m	(923)	(955)	(1,078)	(1,140)	(1,231)	(1,318)	(1,405)	(1,491)
Crew:	£m	(407)	(432)	(454)	(491)	(530)	(568)	(605)	(642)
Navigation:	£m	(285)	(280)	(294)	(318)	(343)	(368)	(392)	(416)
Maintenance:	£m	(179)	(203)	(212)	(228)	(241)	(243)	(243)	(247)
Selling and Marketing:	£m	(102)	(104)	(101)	(118)	(135)	(146)	(157)	(167)
Other Costs:	£m	(171)	(200)	(226)	(241)	(264)	(287)	(308)	(327)
<b>Total Operating Expenses:</b>	£m	<b>(2,984)</b>	<b>(3,323)</b>	<b>(3,547)</b>	<b>(3,804)</b>	<b>(4,093)</b>	<b>(4,579)</b>	<b>(4,823)</b>	<b>(5,018)</b>
<b>EBITDAR</b>	£m	<b>468</b>	<b>531</b>	<b>711</b>	<b>886</b>	<b>1,059</b>	<b>1,008</b>	<b>1,169</b>	<b>1,346</b>
EBITDAR Margin:	%	13.6%	13.8%	16.7%	18.9%	20.6%	18.0%	19.5%	21.1%

Which of the following factors BEST explain why this company's EBITDAR margins are staying in roughly the same range over the next five years?

- It seems like most of the expenses, as percentages of revenue, do not change tremendously.
- Even though the biggest expense, Fuel, increases as a percentage of revenue, it decreases in the final year of the projection period, perhaps due to more fuel-efficient planes.
- Revenue growth slows down substantially by the end of the projection period; when revenue is growing at a relatively low rate, margins will almost always stay in about the same range.
- Margins remain in roughly the same range because the company's fleet composition is most likely staying the same – new planes would almost always lead to a far lower fuel expense.

6. Consider this same company's annual Cash Flow Statement, as shown in the screenshot below:

Cash Flow Statement:	Units	Historical			Projected					
		FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	
<b>CASH FLOWS FROM OPERATING ACTIVITIES:</b>										
Profit / (Loss) for the Period:	£m	£ 225	£ 255	£ 398	£ 535	£ 662	£ 614	£ 740	£ 880	
<b>Adjustments for Non-Cash Items:</b>										
Depreciation:	£m	83	97	102	105	111	121	131	139	
Loss on Disposal of PP&E:	£m	-	1	-	-	-	-	-	-	
Goodwill Impairment:	£m	-	-	-	-	-	-	-	-	
Amortization of Intangible Assets:	£m	7	8	10	12	14	16	18	20	
Share-Based Payments:	£m	6	12	18	25	31	39	48	57	
Additional Cash Interest Earned / (Paid):	£m	21	34	(3)	4	-	-	-	-	
Deferred Income Taxes:	£m	(2)	5	15	11	65	44	72	115	
<b>Changes in Operating Assets and Liabilities:</b>										
Change in Trade and Other Receivables:	£m	27	(44)	74	(64)	(25)	(24)	(22)	(20)	
Change in Trade and Other Payables:	£m	87	74	64	74	89	150	75	60	
Change in Provisions:	£m	(5)	18	29	52	17	(2)	(4)	2	
Change in Other Non-Current Assets:	£m	(9)	6	8	28	(17)	(16)	(15)	(13)	
Change in Derivative Financial Instruments:	£m	(2)	4	-	-	-	(93)	-	-	
Change in Non-Current Deferred Income:	£m	(14)	(13)	(14)	1	7	6	6	6	
<b>Net Cash from Operating Activities:</b>	£m	£ 424	£ 457	£ 701	£ 783	£ 954	£ 856	£ 1,049	£ 1,246	
<b>CASH FLOWS FROM INVESTING ACTIVITIES:</b>										
Purchase of PP&E (CapEx):	£m	(550)	(379)	(400)	(483)	(461)	(558)	(553)	(548)	
Proceeds from Sale of PP&E:	£m	75	1	1	-	-	-	-	-	
Purchase of Intangible Assets:	£m	(6)	(13)	(21)	(36)	(44)	(52)	(60)	(68)	
(Purchase) / Sale of Short-Term Investments:	£m	(102)	20	193	62	10	11	12	13	
<b>Net Cash from Investing Activities:</b>	£m	-£ 583	-£ 371	-£ 227	-£ 457	-£ 495	-£ 599	-£ 601	-£ 603	
<b>CASH FLOWS FROM FINANCING ACTIVITIES:</b>										
Net Proceeds from Share Capital:	£m	3	2	1	1	2	2	2	2	
Share Repurchases:	£m	(8)	(15)	(26)	(25)	(18)	(18)	(18)	(18)	
Proceeds from Bank Loan Issuances:	£m	172	-	-	65	-	24	-	-	
Repayment of Bank Loans:	£m	(154)	(305)	(273)	(125)	(51)	(70)	(89)	(89)	
Proceeds from Finance Leases:	£m	71	-	-	-	-	-	-	-	
Repayment of Finance Leases:	£m	(6)	(9)	(10)	(14)	(25)	(27)	(35)	(37)	
Aircraft Sale and Leaseback Proceeds:	£m	273	-	316	-	-	-	-	-	
Dividends Paid:	£m	-	(196)	(85)	(308)	(185)	(212)	(212)	(262)	
<b>Net Cash from Financing Activities:</b>	£m	£ 351	-£ 523	-£ 77	-£ 405	-£ 278	-£ 302	-£ 353	-£ 404	
Effect of FX Rate Changes on Cash:	£m	(4)	(18)	(29)	(30)	(25)	(27)	(29)	(30)	
Change in Cash and Cash Equivalents:	£m	188	(455)	368	(109)	157	(71)	66	208	
Beginning Cash:	£m	912	1,100	645	1,013	904	1,060	989	1,055	
<b>Ending Cash:</b>	£m	£ 1,100	£ 645	£ 1,013	£ 904	£ 1,060	£ 989	£ 1,055	£ 1,263	

**Which of the following answer choices BEST explain why the company's cash balance is not increasing substantially, even though its Net Income is increasing substantially?**

- a. Even though Net Income increases, CapEx also increases significantly over this period.
- b. The dividends also represent a significant cash outflow that increases above the historical dividend numbers shown on the CFS.
- c. The company's high and increasing Working Capital Requirements reduce its cash flows significantly.
- d. The company has a significant amount of debt and capital leases (finance leases) that must be repaid over this period; those repayments reduce its cash flows by a major amount.
- e. While some of the answers above may be true, the premise of this question is misleading because cash *does* increase by approximately 250 million GBP, which is in-line with the percentage increase in Net Income.

**7. What is the PRIMARY difference between Return on Capital Employed (ROCE) and Return on Invested Capital (ROIC), as they are typically defined for airlines?**

- a. ROCE uses the average market value of equity over the specified period, whereas ROIC uses the average book value of equity (i.e., shareholders' equity) over the specified period.
- b. ROIC includes Total Debt and Finance Leases in the denominator of the formula, but ROCE excludes Debt completely.
- c. ROIC uses reported operating profit and subtracts taxes in the numerator, but ROCE makes numerous adjustments so that the adjusted operating profit is no longer close to the reported figure.
- d. ROCE capitalizes operating leases and includes them in the denominator, also removing the implied interest expense from the numerator, while ROIC does not follow this treatment.

8. Suppose that you are analyzing a company's historical financial statements, and you find that its Return on Capital Employed (ROCE) has increased from 10% to 25% over the past three years.

**Why might this be LESS impressive than it initially appears?**

- a. This increase might simply be the result of significant de-leveraging or a large cash build-up, since you subtract Net Cash when calculating Capital Employed in the ROCE calculation.
- b. The company might have grown its operating profit simply through unsustainable borrowing during this period.
- c. The company could have grown via acquisitions funded by equity issuances, which would have diluted existing shareholders.
- d. The company might have switched from operating leases to capital leases to avoid the operating lease capitalization adjustment found in the ROCE calculation.