



## 2017 Finals: Section 2 - Information Pack

# Section 2: Funding Fun

**40 marks available in this Section – Available time is 80 minutes**

### INTRODUCTION

You are an analyst helping your company prepare its purchase bid for the 30-year concession of a State-owned infrastructure asset that has been put up for sale. You have been provided the outline of a financing model which includes 10 scenarios of Inputs, and 10 scenarios of Operating Cash Flow taken from a colleague's forecast operations model.

For each of the Input scenarios, most assumption values have been provided, but one or two from each scenario will need to be solved for to find the **optimal value**, subject to the other values provided.

The values that may need to be solved for are:

- First Debt Repayment Date
- Sculpted DSCR
- Debt Drawdown amount
- Equity Investment amount
- Required Rate of Return (also known as the Equity IRR)

Your task will be to build the necessary additions to the model so that it can identify the Optimal missing values for the selected scenario.

**For the 1<sup>st</sup> and 2<sup>nd</sup> dot point items, Optimal values are defined as:**

- If solving for First repayment date, the latest possible date; or
- If solving for the Sculpted DSCR, the largest possible DSCR

That still allows the debt to be repaid by the Latest allowed Debt Maturity Date, without the DSCR ever falling below the Sculpted DSCR value in any given quarter.

**For the 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> dot point items, Optimal values are defined as:**

- If not provided with the Required Rate of Return, the values that maximise the Equity IRR, which will then become the Required Rate of Return
- If provided with the Required Rate of Return, the values that maximise the Purchase Price whilst ensuring that the Equity IRR is not less than the Required Rate of Return.

Build your model adhering to the included Details, and then answer the Questions.

Further conditions ("Requirements of a Solved Model") are listed at the bottom of the Inputs worksheet.

### QUESTION SUMMARY

Questions 1 to 20 are based on the provided input scenarios.

Questions 21 to 23 may require you to change some of the existing user-variable input values from certain scenarios in order to answer.

### Precision of Answers:

If submitting a dollar value, give your answer rounded to the nearest thousand dollar (*i.e.* 0 decimal places when working in units of [\$'000]). There is no need to write "k" or ",000" at the end.

If submitting a DSCR value, give your answer to 3 decimal places

If submitting a percentage rate, give your answer as a percentage to 3 decimal places (e.g. 11.543%)

If submitting a date, give your answer rounded to the nearest day. (That's a joke...)

**Answer all questions by writing on the provided Question and Answer Sheet**



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### DETAILS

1. Purchase Date Cash Flows

On the Purchase Date, the debt facility is drawn with a single drawdown and a single equity investment is made (there are no other equity investments at any time). The sum of these two amounts equals the **Purchase Price** which immediately goes to the State. In other words, net cash flow for the Purchase Date is zero.

2. Interest Calculations

Interest is calculated on the last day of each quarter as

*(Opening Balance in Quarter) \* (Rate % p.a.) \* (Days in Qtr) / 365*

This applies to both the interest owed on the Debt, and the interest earned / (owed) on any positive / (negative) cash account balance.

3. Refinancing Calculations

The debt is refinanced at three points throughout the term. The refinanced amount is the outstanding debt balance immediately after principal repayment on the refinancing date. A fee is charged on the refinanced amount, and this fee is capitalised into the debt balance. For clarity, there is no fee payable on the fee itself. The fee is only charged on the old balance that is being refinanced.

4. Debt Interest Payments

Interest owed is always paid in full at the end of each quarter for the entire life of the debt facility.

5. Debt Principal Repayments

Debt is repaid on the last day of each quarter, commencing on the First Debt Repayment Date, continuing every quarter until the facility is fully repaid. All debt must be paid off on or before the Latest Allowed Debt Maturity Date. The amount of each repayment must be sculpted so that the DSCR is constant for all quarters during the repayment term. The only exception to this is the final repayment quarter, which can have a higher DSCR. The repayment amount in any quarter cannot exceed the quarterly opening balance of the facility. Redraws are not permitted.

6. DSCR

The DSCR is defined only for quarters where the principal repayment amount is not zero. It is equal each quarter to the quarterly value of  $CFADS / (Net\ Interest\ Expense + Principal\ Repayments)$

7. CFADS

CFADS (Cash Flow Available for Debt Service) is provided by the 'Operations' worksheet for each quarter. For clarity, the definition of CFADS does not include any carryover opening balance.

*Hint: Assumptions have been set so that CFADS will be relatively smooth and healthy, and will always be at least as large as Net Interest Expense \* Sculpted DSCR*

8. Net Interest Expense

Defined as: For each quarter, interest owed on Debt plus interest owed on cash account overdraft balance (if any) less interest earned on cash account positive balance (if any).

9. Cash Flow Waterfall

The Cash Flow Waterfall should include only the following items:

*(1) CFADS; (2) Interest Revenue/(Overdraft Expense) on Cash Balance; (3) Interest Expense on Debt; (4) Principal Repayments; (5) Equity Distributions*

All cashflows are assumed to occur on the final day of each quarter.

10. Equity Distributions

Distributions occur on the last day of each quarter every June during the Asset life, and at the Asset Expiration Date. All available cash (including the carry over opening balance) is distributed each distribution date, so long as the cash balance is positive immediately prior to distributions.

11. Equity IRR

The Equity IRR should be calculated using the XIRR function, and consider the cashflows to/from equity between the Purchase Date and the Asset Expiration Date inclusive.



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Your Name:

### QUESTIONS AND ANSWERS

#### Question 1

For Scenario 1, what is the date of the final debt repayment? [1 mark]

<b>A</b>	31 Dec 2044	<b>D</b>	30 Sep 2045	<b>G</b>	30 Jun 2046
<b>B</b>	31 Mar 2045	<b>E</b>	31 Dec 2045	<b>H</b>	30 Sep 2046
<b>C</b>	30 Jun 2045	<b>F</b>	31 Mar 2046	<b>I</b>	31 Dec 2046

#### Question 2

For Scenario 1, what is the total amount of distributions paid? [1 mark]

<b>A</b>	66,929	<b>D</b>	66,959	<b>G</b>	66,989
<b>B</b>	66,939	<b>E</b>	66,969	<b>H</b>	66,999
<b>C</b>	66,949	<b>F</b>	66,979	<b>I</b>	67,009

#### Question 3

For Scenario 1, what is the Equity IRR? [1 mark]

<b>A</b>	9.386%	<b>D</b>	9.389%	<b>G</b>	9.392%
<b>B</b>	9.387%	<b>E</b>	9.390%	<b>H</b>	9.393%
<b>C</b>	9.388%	<b>F</b>	9.391%	<b>I</b>	9.394%

*Questions 4 to 20 ask for the optimal solved values for Scenarios 2 to 10.  
All are free field answers.*

<b>Question 4</b>	<b>For Scenario 2, what is the First Repayment Date?</b>	<b>Question 5</b>	<b>For Scenario 2, what is the Equity IRR?</b>
[1 mark]		[1 mark]	

<b>Question 6</b>	<b>For Scenario 3, what is the Equity Investment Amount?</b>		
[2 marks]			

<b>Question 7</b>	<b>For Scenario 4, what is the Sculpted DSCR?</b>	<b>Question 8</b>	<b>For Scenario 4, what is the Equity IRR?</b>
[2 marks]		[1 marks]	



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<b>Question 9</b>	<b>For Scenario 5, what is the First Repayment Date?</b>	<b>Question 10</b>	<b>For Scenario 5, what is the Equity Investment Amount?</b>
[1 mark]		[2 marks]	

<b>Question 11</b>	<b>For Scenario 6, what is the Sculpted DSCR?</b>	<b>Question 12</b>	<b>For Scenario 6, what is the Equity Investment Amount?</b>
[1 mark]		[2 marks]	

<b>Question 13</b>	<b>For Scenario 7, what is the First Repayment Date?</b>	<b>Question 14</b>	<b>For Scenario 7, what is the Equity IRR?</b>
[1 mark]		[2 marks]	

<b>Question 15</b>	<b>For Scenario 8, what is the Sculpted DSCR?</b>	<b>Question 16</b>	<b>For Scenario 8, what is the Equity IRR?</b>
[2 marks]		[1 marks]	

<b>Question 17</b>	<b>For Scenario 9, what is the Sculpted DSCR?</b>	<b>Question 18</b>	<b>For Scenario 9, what is the Debt Drawdown Amount?</b>
[2 marks]		[2 marks]	

<b>Question 19</b>	<b>For Scenario 10, what is the Debt Drawdown amount?</b>	<b>Question 20</b>	<b>For Scenario 10, what is the Equity Investment Amount?</b>
[2 marks]		[2 marks]	

Remember to attempt Questions 21 to 23 on the next page!



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**For the following questions, you will need to select a Scenario, but change the 'Operating Scenario in force' assumption ('Inputs' row 24) for that Scenario in order to answer the questions.**

**For each of these questions, you will need to get both parts correct in order to receive the marks for the question.**

### Question 21 (Free field answer)

**Select Scenario 5. Which Operating Scenario (1 to 10) leads to the largest optimal Equity Investment for Scenario 5, and what is that Equity Investment Amount? [3 marks]**

Operating Scenario: \_\_\_\_\_

Equity Investment Amount: \_\_\_\_\_

### Question 22 (Free field answer)

**Select Scenario 9. Which Operating Scenario (1 to 10) leads to the 3<sup>rd</sup> largest Sculpted DSCR for Scenario 9, and what is that DSCR? [4 marks]**

Operating Scenario: \_\_\_\_\_

Sculpted DSCR: \_\_\_\_\_

### Question 23 (Free field answer)

**Select Scenario 10. Which Operating Scenario (1 to 10) leads to the 6<sup>th</sup> largest Purchase Price for Scenario 10, and what is that Purchase Price amount? [3 marks]**

Operating Scenario: \_\_\_\_\_

Purchase Price Amount: \_\_\_\_\_



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Your Name:

## Answers

1	E	31 Dec 2045
2	C	66,949
3	D	9.389%
4	Free field	31 Dec 2029
5	Free field	9.424%
6	Free field	18217 k
7	Free field	1.539
8	Free field	9.388%
9	Free field	30 Sep 2024
10	Free field	16478 k
11	Free field	1.588
12	Free field	22586 k
13	Free field	31 Mar 2028
14	Free field	9.088%
15	Free field	1.493
16	Free field	10.309%
17	Free field	1.613
18	Free field	42695 k
19	Free field	52481 k
20	Free field	16074 k
21	Free field	OS 4, 17236 k
22	Free field	OS 6, 1.625
23	Free field	OS 3, 67951 k