# Section 4: Case Study – Going Around In Circles

**Time Allocated: 36 minutes.**

## INTRODUCTION

You are working for a real estate development company called ModelOff Real Estate ("MORE"). MORE are assessing the financial viability of a new project and have asked you to assist with this. The project is a residential real estate development of 1,630 houses in an area that the local council has identified as requiring new residential housing. The land for the houses is being sold by the council to enable this development to be undertaken and the council is currently undertaking a sale process for this land. MORE is one of two developers in this land sale process.

You will need to develop a model to forecast the cash flows for the project. The model will be quarterly and cover four years (16 quarters) from 1 January 2017 until 31 December 2020.

The key model inputs (discussed below) have been provided to you in the Excel file titled 'MO16 Round 1 - Sec 4 - Going Around in Circles.xlsx'.

Assume that all cash flows occur on the last day in the quarter. No inflation should be applied.

## HOUSES

There are four different categories of houses to be built on the site. The size, construction cost and sales price for each house category are summarised in the table below:

| Category | Size | Construction cost | Sales price |
|---|---|---|---|
| | Square metres | $ per square metre | $ |
| Category A | 50 | 2,600 | 250,000 |
| Category B | 60 | 2,400 | 300,000 |
| Category C | 75 | 2,300 | 335,000 |
| Category D | 95 | 2,500 | 500,000 |

The number of houses built in each quarter is shown in the table below. All associated construction costs are paid in the quarter the house is constructed.

| Quarter | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Quarter ended | Mar 18 | Jun 18 | Sep 18 | Dec 18 | Mar 19 | Jun 19 | Sep 19 | Dec 19 | |
| Category A | 200 | 100 | 70 | 70 | 50 | 50 | - | - | **540** |
| Category B | - | 100 | 150 | 100 | 80 | 80 | - | - | **510** |
| Category C | - | - | - | 50 | 100 | 100 | 50 | 50 | **350** |
| Category D | - | - | - | - | 30 | 50 | 100 | 50 | **230** |

The number of houses sold in each quarter is shown in the table below. All associated revenue is received in the quarter the house is sold.

| Quarter | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Quarter ended** | **Sep 18** | **Dec 18** | **Mar 19** | **Jun 19** | **Sep 19** | **Dec 19** | **Mar 20** | **Jun 20** | **Sep 20** | **Dec 20** | |
| Category A | 40 | 160 | 104 | 73 | 66 | 52 | 40 | 5 | - | - | **540** |
| Category B | - | 20 | 100 | 135 | 101 | 82 | 64 | 8 | - | - | **510** |
| Category C | - | - | - | 10 | 55 | 95 | 90 | 55 | 40 | 5 | **350** |
| Category D | - | - | - | - | 6 | 31 | 58 | 85 | 45 | 5 | **230** |

## OTHER COSTS

There are other costs that the project will incur in addition to the house construction cost. These are:

- Land purchase costs in Quarter 1 of $80m. These are to be paid to the council.
- Earthworks costs in Quarters 1, 2, 3 and 4 of $20m, $17.5m, $15m and $15m respectively.
- Pre-construction costs in Quarters 1, 2, 3 and 4 of $2.5m, $5m, $7.5m, and $9m respectively.
- Other costs of $2.5m per quarter in each of the first four quarters and $1m per quarter in the subsequent eight quarters (Quarter 5 to Quarter 12)

## EQUITY FINANCING

Total equity funding of $40 million will be used for the project. This will be paid in at $10 million each quarter for the first four quarters. Debt will be drawn to fund all other costs. In quarters where the project generates cash, available cash is first used to repay any outstanding debt. Once the debt is fully repaid any remaining cash is distributed to the shareholders.

For questions 38 – 40, an alternative equity drawdown approach will be modelled. Under this, equity will be drawn in each quarter at 20% of the funding required in that period until $40m equity is drawn. Once the $40 million is fully drawn, debt will be drawn to fund all remaining financing requirements.

## DEBT FINANCING

You are currently in negotiations with a local bank to provide a debt facility for the project. The maximum size of the facility will be a key output of your financial model.

The facility will charge a 7% p.a. interest rate. The interest will be calculated on the opening balance each quarter. The interest rate for each quarter will be calculated on a (days in quarter) / (days in calendar year) basis.

The facility will charge an arranging fee of $5 million paid at the end of the first quarter.

There are other fees that the bank may charge depending on the outcomes of the negotiation process. These fees should not be included for questions 31 – 33 but should be incorporated for questions 34 and 35 onwards respectively. These potential other fees are

- Changing the arranging fee from a fixed $5 million to be equal to 2% of the maximum required facility size. *Incorporate this from question 34 onwards.*

- A commitment fee of 1.25% p.a. The commitment fee will be calculated on the undrawn facility amount at the start of each quarter and paid at the end of the quarter. The commitment fee rate for each quarter will be calculated on a (days in quarter) / (days in calendar year) basis. The fee will be paid in every quarter until the end of the model (31 Dec 2020), even if the facility has been fully repaid. *Incorporate this from question 35 onwards.*

## FINANCING – ADDITIONAL INFORMATION

To assist you in answering this question, we provide the following additional information on the funding:

- In any given quarter, there will be some or all of the following: operating cash flow (positive or negative cashflow), arranging fees (negative cashflow), commitment fees (negative cashflow) and interest (negative cashflow).

- Where the sum total of these values is negative, this cashflow shortfall must be financed through either equity or debt. There are two different approaches to the sizing of the equity draw each quarter, as set out above.

- Where the sum total of these values is positive, this excess cashflow is first used to repay debt. Once the debt facility is fully repaid, distributions to shareholders can be made.

- You will be required to calculate a quarterly closing debt facility balance to answer some of the questions. This is an end of period calculation after all debt drawdowns and repayments are made. The maximum facility size (used to calculate arranging and commitment fees) is the maximum of the quarterly closing debt facility balances calculated.

## ACCURACY OF ANSWERS

Components of this questions will likely require the calculations to iterate in order to get the correct solution. The maximum change for an iteration should be no larger than $0.1 to ensure your answers are accurate.

**For Questions 31 to 37, select your answer from a multiple choice list.**
**For Questions 38 to 40, you are required to type in your answer.**