Coursework 1- Financial Modelling

ACFI3425 Advanced Business Intelligence Using Excel 2021/2022

- **This coursework weighs 50% of total module grade**
- **Due Date: Week 16 - Friday 21-01-2022 by 12:00 PM**
- **Submission form: submit a soft copy via Assessment tab on blackboard**

Guidelines:

Only 1 attempt is allowed. It is your responsibility to ensure that your file is working after submission. Any problem, please email samar.gad@dmu.ac.uk

1- Do not forget to save your work regularly.

2- Save your Excel file using your PNUMBER as your file name.

3- Copying someone's else model and changing its formatting will be significantly penalised and reported to the academic practice officer as an academic offence.

Penalties will be imposed for unauthorised late hand-in of work, as follows:

· Up to 14 days late without permission Max. mark 40%

· More than 14 days late without permission 0%

To apply for an extension, you will need to complete this form Application for an Extension to Coursework Form and upload any relevant evidence. If you are having difficulties with this or with obtaining evidence, please contact Business and Law Student Advice Centre either on T: 0116 2577243 or by sending an email to balcer@dmu.ac.uk

Assessment Criteria:

Style and structure	25 marks
Links and automation	25 marks
Calculations	25 marks
Formatting and visualisation	25 marks

Case Study- "West Reservoir"

Berkley Inc. is considering investing in an apartment complex called "West Reservoir Compound" and needs to run an analysis of its projected financial statements and discounted cash flow valuation over 6 years.

Assets:

- Land and improvements £1,280,947
- Buildings and Improvements £1,965,046
- Furnishings and Equipment £103,429
  - Furnishing and Equipment useful life 6 years
  - Furnishing and equipment has no residual values
  - Use straight line depreciation method to calculate annual depreciation expense.
  - To calculate depreciation: divide the cost of the asset by the number of years. You need to enter this amount into the model to determine its depreciation.
  - Straight line method assumes that depreciation is the same every month.

Current Liabilities

	Y0	Y1	Y2	Y3	Y4	Y5	Y6
Tenant Deposit*	1500000	2176182	1860138	1551187	1235846	916533	590010
Accounts payable		299251.2	603268.4	912098.4658	1227439.466	1547968.747	1876809.583

** Tenant security deposits should appear under current liabilities in the balance sheet.

Equity shares and other funding resources

- Long term loan £1,000,000

  Loan terms:
  - Years: 20 years
  - Annual interest rate: 4%
- Equity - Capital contributed by owners £2,000,000
  - Return on Equity: 15%
  - Outstanding shares: 25,000
  - Perpetuity growth rate 2%

Revenues

West Reservoir Compound is a high-end market rate apartment complex featuring 280 apartment units:

- *Two- Bedroom apartment: 50 units*
- *One-Bedroom apartment: 150 units*
- *Studio unit: 80 units*

Monthly rent:

- *Two- Bedroom apartment: £1800*
- *One-Bedroom apartment: £945 units*
- *Studio unit: 80 units: £650*

Increase in rents:	0	1	2	3	4	5	6	7	8	9
		2.5%	5.0%	3.5%	3.5%	3.5%	-	-	-	-

Estimated vacancy rates: (for each year)	1	2	3	4	5	6	7	8	9	10
	2.00%	1.00%	0.50%	1.50%	3.00%	2.50%	-	-	-	-

Expenses

Management Fee (% of effective growth income (EGI) is 5%

Estimated Operating Expenses:

Operating Expenses	
Management Fee (5% of EGI)	
Salary Expense	45,000
Utilities	25,000
Insurance	9,500
Supplies	10,500
Advertising	15,000
Maintenance & Repairs	90,000
Property Taxes	150,000

- Operating expenses are expected to increase at an annual rate of 2% except for management expenses (which are 5% of EGI)
- Property taxes are expected to increase in Year 4 by 2.5%
- Income tax rate is 40%. The business does not pay taxes if it is making a loss.

Income Statement Structure

Potential Gross collected Rent

-Vacancy Allowance

 =**Effective Gross Income**

-Total expenses including depreciation

= **Net Operating Income**

-Interest expense

= **Income before tax**

= (-) Income taxes

Net income

Cash flow statement structure

Opening cash balance

Cash flow from operations:

Net income

 + Depreciation and Amortisation (non-cash)

 +Changes in Net Working Capital

    - increase in accounts receivable

    + increase in accounts payable

Total change in net working capital

Net cash from operations

Cash Flows from Investing Activities:

       Purchase of fixed assets

Net Cash Used by Investing Activities

Cash flow from financing activities:

       Long term loan

       Owners' funds

-    Payment of debt principal

Net cash used by financing activities

Closing cash balance = net cash from operations net cash from investment net cash

from financing

Balance Sheet Structure

Current assets
Cash
Tenant deposit
Account receivables

Total current assets

Fixed assets
Land and improvements
Buildings and Improvements
Furnishings and Equipment
-Accumulated depreciation

Total fixed assets

Total assets

Liabilities and Equity
Current liabilities
Accounts payable
Tenants deposits

Total current liabilities

Long term liabilities
Long term debt

Total long-term liabilities

Total liabilities

Equity:
Owners funds
Retained earnings (income after tax + any income from previous year)

Total Equity

Total Liabilities and Equity

Error check: check if total assets is equal to total liabilities and equity in the last row of the balance sheet.

Requirements:

1. Integrated financial statements and Discounted cash flow valuation.

   a. Forecast annual Income statement

   b. Forecast annual cash flow statement

   c. Forecast annual balance sheet

   d. Perform discounted cash flow valuation, given **perpetuity growth rate 2%**

      i. Forecast the free cash flow

      ii. Calculate the weighted average working capital

      iii. Calculate the terminal value for the business

      iv. Calculate the NPV

      v. Calculate the fair value per share.

Notes:

- Create necessary tabs in your Excel file to help the user understand your model

- Ensure that your model does not show errors

2. Create a new tab named "Answers" and provide the answers for questions below:

   If the owners target £300000000 as terminal value, by changing the interest rate,

   a) What is the new annual interest rate that would help them achieve the above terminal value?

   b) What is the new NPV?

   c) What is the new fair value per share?

3. Perform scenario analysis on the income statement and cash flow statement.

Scenarios	Estimated vacancy rates for each year					
	1	2	3	4	5	6
Base case	2.00%	1.00%	0.50%	1.50%	3.00%	2.50%
Worst case	8.00%	5.00%	2.50%	5.00%	8.00%	6.50%
Best Case	0%	0%	0%	0%	0%	0%

4. Insert two charts to show the values under the three scenarios; one for annual net income and another for closing cash balance.

5. The business is considering charging tenants for parking on top of the rent. Parking cost/unit is £2000 per year.

   a. What would be the effect on the net income?

   b. Insert a suitable chart to show the two scenarios (income with parking and income without parking).

6. Ensure that chart titles are automated and updated when scenarios change. Ensure suitability of the chart type and double check if it makes sense.

7. After you finish your model, create a new tab named "Introduction" to give an overview for the user about the purpose of this model and its components. It will be an advantage to give the user instructions on how to navigate the model and which cells in which worksheet the user need to manipulate to update the model.

8. Formatting:

   a. Ensure that the background in all sheets is white

   b. Apply necessary formatting for tables

   c. Maintain consistency in model design and theme.

ACFI3425 Coursework 1: Frequently Asked Questions (FAQ)

1- What is Return of Equity (ROE) for?

You need it in the discounted cash flows valuation. It represents "Cost of Capital" or the return investors expect from their investment.

2-For DCF valuation, are capital expenditures given? if yes, do I need to include it in my model?

No, there is no givens for capital expenditures. Follow the cash flow statement structure in the coursework brief.

3- The business does not have account receivables or inventory; do I need to include them in my model?

No.

4- I don't understand where to include tenant deposit.

Tenant deposit represents prepaid expense. It should appear under current assets and current liability. Please revisit the coursework brief and check the balance sheet structure.

5- Do I need to enter the long-term loan value £1,000,000 every year?

No, you do not.

You get the loan in the beginning of the business operations, and you start paying instalments and interest every year.

The instalments are calculated on annual basis and should be included in the cash flow statement for Payment of debt principal.

Interest expense should appear in income statement.

6- What if my balance sheet does not balance? Will I lose many marks?

It depends on why it is not balanced:

- If the business is short in cash and it is going bankrupt - maybe, then this is not your fault.
- If it is unbalanced because of calculations, then you may lose marks.
- If it is unbalanced because of missing inputs, it will either link to automation or not following the givens in the brief and may make you lose few marks.

Ensure you include error checking in your model

7- Where do I get cash balance in the balance sheet?

Cash in the balance sheet should reflect the closing cash balance from cash flow statement.

8- Where to show the scenario analysis?

In a separate tab named "Scenario Analysis".

9- Is it a mistake to include Scenario analysis in the assumptions tab?

It is not a good modelling practice. It is better to have an individual tab for each part of your model.

10- How significant is data entry to assessment grading?

Not significant to the total assessment grade.

Data entry should be enough to cover same statements' structure provided in the brief to complete the calculations correctly.

Calculations are assessed based on formulas and functions you use, and they represent 25% of total assessment grade. If your inputs are significantly incomplete, it will reflect on the variety of functions you use in your model.

11- Can you just give me the ready model?

NO.

12- Can I show you my draft model while asking you for clarifications?

Yes, you can. This assessment is about designing a tailored model for a client. It can involve consultations and follow ups with tutors.

13- I am starting to panic and I am afraid I won't be able to finish. What should I do?

The model should not take too long to complete. The best way to go around this is scheduling a day and time to sit and read the brief carefully and start designing your model.

It is highly recommended to complete everything in one shot. You may leave the formatting (highlight, font, number formatting, cell borders to the end, etc…). This way, the stream of your thoughts will not be interrupted, and you will have a solid draft to work on. Pass any questions to your tutor on regular basis and at an early stage to avoid stress.

14- In which week did we cover discounted cash flows valuation?

Please refer to week 7 PPT slides and excel file "Week 7 – Output". You can use the table in DCF tab as a template and reference the relevant numbers to update the formulas and fill the tables.

15- Are the expenses given per month or per year?

Per year.

16- How to calculate EGI?

It is given in coursework brief page 4 under the income statement as follow:

Potential Gross collected Rent

-Vacancy Allowance

=Effective Gross Income

17- Do we do annual or monthly calculations?

Everything in the model is calculated on annual basis. You need to provide the annual figures.

18- What should we show in the introduction tab?

Follow – Week 10 "Financial Model Output Sample: Broker performance model". The "Help" tab gives you a very good example to help the user understand the following:

- The purpose of the model
- The purpose of each tab
- It shows how to navigate the model and what are the cells to manipulate in order to perform scenario analysis or goal seek.
- You can include screen shots arrows or demonstrate anything in any other way you prefer.

Please refer to week 10 folder- "Week 10- Exercise responses" for more guidance.

19- What should the charts show for the scenario analysis?

You should show the net income (to demonstrate profitability) and closing cash balance (to demonstrate liquidity).

DMU generic undergraduate mark descriptors

Modules are marked on a range of 0-100%. Mark descriptors are given in the table below.

These descriptors are inter-related: with regard to marks of 40 and above there is an assumption that in awarding marks in one band work will have met the requirements of the previous band; with regard to marks of 39 and below there is an assumption that in awarding marks in one band work will NOT have met the requirements of the previous higher band. When marking an individual piece of work there is an expectation that it will clearly demonstrate most of the criteria within each band.

Mark Range	Criteria	Degree classification boundary
90-100%	- Responds to all of the assessment criteria for the task. - Displays exceptional degree of originality. - Exceptional analytical, problem-solving and/or creative skills - No fault can be found with the work other than very minor errors, for example minor typographical issues	First class honours Distinction
80-89%	- Responds to all of the assessment criteria for the task. - Work of outstanding quality, evidenced by an ability to engage critically and analytically with source material. - Likely to exhibit independent lines of argument. - Highly original and/or creative responses. - Extremely wide range of relevant sources used where appropriate	First class honours Distinction
70-79%	- Responds to all of the assessment criteria for the task. - An extremely, well developed response showing clear knowledge and the ability to interpret and/or apply that knowledge. - An authoritative grasp of the subject, significant originality and insight, - Significant evidence of ability to sustain an argument, to think analytically, critically and/or creatively and to synthesise material. - Evidence of extensive study, appropriate to task.	First class honours Distinction
60-69%	- Responds to most of the assessment criteria for the task. - A detailed response demonstrating a thorough grasp of theory, understanding of concepts, principles, methodology and content. - Clear evidence of insight and critical judgement in selecting, ordering and analysing content.	Upper second class honours (2:1) Merit

	• Demonstrates ability to synthesise material, to construct responses and demonstrate creative skills which reveal insight and may offer some originality. • Draws on an appropriate range of properly referenced sources.	
50-59%	• Responds to most of the assessment criteria for the task. • An effective response demonstrating evidence of a clear grasp of relevant material, principles and key concepts • An ability to construct and organise arguments. • Some degree of critical analysis, insight and creativity. • Demonstrating some conceptual ability, critical analysis and a degree of insight. • Accurate, clearly written/presented	Lower second class honours (2:2) Pass
40-49%	• Responds to some of the assessment criteria for the task. • A response demonstrating an understanding of basic points and principles sufficient to show that some of learning outcomes/assessment criteria have been achieved at a basic level. • Suitably organised work demonstrating a reasonable level of understanding • Covers the basic subject matter and is appropriately presented but is rather too derivative and insufficiently analytical. • Demonstrates limited conceptual ability, levels of evaluation and demonstration of creative skills. • Demonstrates adherence to the referencing conventions appropriate to the subject and/or task.	Third class honours Pass

30-39%	• Overall insufficient response to the assessment criteria. • A weak response, which, while addressing some elements of the task, contains significant gaps and inaccuracies. • Indicates an answer that shows only weakly developed elements of understanding and/or other skills appropriate to the task. • May contain weaknesses in presentation that constitute a significant obstacle in communicating meaning to the assessor.	Fail
20-29%	• Overall insufficient response to the assessment criteria. • A poor response, which falls substantially short of achieving the learning outcomes.	Fail

	• Demonstrates little knowledge and/or other skills appropriate to the task • Little evidence of argument and/or coherent use of material	
10-19%	• Overall insufficient response to the assessment criteria. • A very poor response demonstrating few relevant facts • Displays only isolated or no knowledge and/or other skills appropriate to the task. • Little adherence to the task	Fail
0-9%	• Overall insufficient response to the assessment criteria. • Displays virtually no knowledge and/or other skills appropriate to the task. • Work is inappropriate to assessment task given	Fail

Further guidance on the use of these descriptors is available on a separate information sheet.

Where Faculties have developed specific mark descriptors for their academic disciplines, and they are provided in programme handbooks issued at the start of the session, these take precedence over the generic mark descriptors given above.