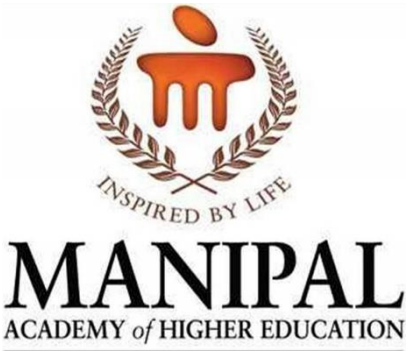
MANIPAL INSTITUTE OF MANAGEMENT



SUBJECT: STRATEGIC FINANCIAL MANAGEMENT

ASSIGNMENT ON MERGERS and ACQUISITIONS

MBA (Global and General)

INSTRUCTION MANUAL

Submission Date for Students: 18-05-2022

Faculty:

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Associate Professor, Manipal Institute of Management, Manipal.

GENERAL GUIDELINES

This assignment/project aims to develop the skills required in corporate valuation like extracting data, creating a Trailing Twelve Month (TTM) financial statement, estimating valuation inputs and detailed analysis and interpretation of data, with its logical inference and business and managerial insights. It is expected that this assignment will be undertaken with due process rigor and well presented with clear writing, correct usage of grammar without typing errors, and interpretation. The Project is included in the course on Strategic Financial Management to enable the students to conduct research, so the research skillset and its application are learnt deeply, to enable them make data-driven business decisions.

For the purpose of explanation of the assignment, consider a team to consist of 5 students (A, B, C, D & E) having companies W, X, Y & Z. Note that the 5^{th} student i.e. student E won't have his own company and will be carrying out the task of merging the firms of first 4 students.

FORMATTING and SUBMISSION GUIDELINES

Font size 12 of Times New Roman with a spacing of 1.15 and justified (alignment of text). The number and title of a section/sub-section in block capitals, and underlined, will be placed on the left.

The final report should be submitted as hardcopy (printed), along with printed latest annual statement of each firm (namely firms W, X, Y & Z).

Simple Cut-Copy paste work will not be encouraged. The plagiarism for the "corporate governance" section of the work should not be more than 10%. The soft-copy of the corporate governance section has to be mailed to the faculty atleast 3 days prior to final submission. Peer-to-Peer copying (applicable on the entire assignment) will be penalised for both the students.

MARKING CRITERIA FOR THE PROJECT

Even though this has been given as a team assignment, each student will be marked individually based on their contribution to the assignment. The below marks distribution criteria will be followed to mark each student.

1. Clarity of Corporate Governance analysis (for students A, B, C & D) and merger combination analysis (for students E) (20% weight)
2. Data Extraction: this rubric will evaluate whether the student has entered correct inputs for the excel sheet provided. (30% weight)
3. Proper Explanation of usage of Excel Sheets (20% weight)
4. Data analysis, results and Implication (20% weight)
5. Neatness, presentation and readability: this rubric will judge how well the work done is presented and written. The work shouldn't be just a bunch of number written in haphazard manner. (10% weight)

CONTENTS OF THE REPORT

The Project Report should be in the following sequential order:

1. Preliminaries

i. Cover page

ii. List of Team members (along with their respective companies)

iii. Certificate (assignment will not be considered as submitted unless the course instructor reviews the report and signs the certificate page)

iv. Table of Contents

2. Main body of the Report

i. Student A

- Corporate Governance of respective firm (2-3 pages).
- Choice of Valuation Model (use Excel file 1).
- Justification for the choice of Valuation model.
- Using Excel file 2 (FCFF) or Excel file 3 (FCFE)
- Explanation for the usage of the Excel files and the data entered in excel files.
- Summarized Output of the Excel files
- Implications of the Output

ii. Student B (same pattern as Student A above)

iii. Student C (same pattern as Student A above)

iv. Student D (same pattern as Student A above)

v. Student E

- List all the 6 possible Merger Combinations (WX, WY, WZ, XY, XZ, YZ)
- Type of business of firms W, X, Y & Z
- Rationale for Choice of Acquiring firm and Target firm in each of the six combinations.
- Using Excel, conduct the following for each of the six combinations:
    - Leveraged Buy Out/Merger Analysis (use Excel file 4)
    - Value of Control (use Excel file 5)
    - Synergy generated post-acquisition (use Excel file 6)
- Result Analysis

- Implications: Appropriate Purchase Consideration & choice of Payment (cash option or equity option). With proper justification.

3. Conclusion

DESCRIPTION ABOUT EACH SECTION UNDER THE "MAIN BODY OF REPORT"

Part A to G has to be done ONLY by Students A, B, C and D individually and later compiled together in the final report. Part H to M has to be done by Student E.

A. Corporate Governance of respective firm:
You need to *analyse* the current corporate governance structure of the firm and who are the majority of shareholders. For example, the recent change in corporate governance of twitter has given rise to speculations about its future. This entire section needs to be covered in 1 to 2 pages. This shouldn't be a copy-paste work.

B. Choice of Valuation Model:
Students A, B, C and D need to use the excel file Model.xls in order to decide which valuation model needs to be used. Based on the output of this sheet, the above students will EITHER use excel file fcffsimpleginzu.xls or fcfeginzu.xls. (Note: only one of the excel file needs to be used because either you will follow FCFF model or FCFE model.

C. Justification for the choice of Valuation model:
Simply entering the values in the Model.xls excel file won't be sufficient. Students, *in brief*, need to explain how they filled each data sheet and the rationale behind both the input and the outputs.

D. Using Excel File 2 (fcffsimpleginzu.xls) or Excel file 3 (fcfeginzu.xls):
As discussed in part B above, based on output of model.xls students A,B, C and D need to use either excel file 2 or excel file 3. The output of both these excel files is the Value of the firm. You need to enter screenshots of the output excel sheet in this part.

E. Explanation for the usage of the Excel files and the data entered in excel files:
Similar to part C above, students are expected to explain their rationale for the inputs entered and their meaning. For example, if earnings are being normalised using the 'Normalised Earnings' worksheet in fcfeginzu.xls file then students, *in brief*, need to explain why there is a need to normalise the earning and how is it being done in the excel file. [Answer: we normalise the earning when they are negative. There are two methods available in excel worksheet to normalise the earnings]

F. Summarized Output of the Excel files:
A summary of the outputs used from the use of all the above (effectively 2) excel files needs to be provided in this section. Again, it is expected that, a short explanation regarding the outputs and their relation to each other be provided.

G. Implications of the Output:
This is a *very critical section of the document*. Here students need to explain the implications of the outputs obtained from the above excel files. Implications should include understanding the difference between the output you obtained and the current market value of the firm. The implications of the results on possible mergers & acquisitions related to that firm. For example, if a firm has strong corporate governance and financials then it is difficult to be the target of any other firm. Also, make a comparison will industry averages. Data related to industry averages is provided inside the excel files itself. This section will be helpful for work of student E also.

H. List all the 6 possible Merger Combinations (WX, WY, WZ, XY, XZ, YZ):
The work of student E begins here. Now, this student has the data for 4 firms namely, W, X, Y & Z. There are six possible merger combinations: WX, WY, WZ, XY, XZ, YZ.
Further steps will be explained using the combination of firms W & Y. But, *student E has to do the below steps for all the possible combinations of the 4 firms*.
Ex: WY means there can be a merger/acquisition between firms W and Y.
In this section, student E has to write about each of the above mentioned six combinations and make a table comparing the fundamental of the firms. Ex: for firm WY, make a table with two columns (one for W and one for Y). The rows should be parameters like Market Capitalisation, Share Price, Type of Industry, D/E ratio etc.

I. Type of Business:
Here student E needs to explore the type of business that each firm operates in (multi-business or not). Ex: in combination WY, discuss about the type of business each of them is in. Then discuss the possible cause for acquisition of W and Y separately.
Like, in real life, what led to acquisition of a tech giant like Twitter? Basically you have to answer: *What CAN LEAD TO ACQUISITON OF firm W/X/Y/Z respectively*.

J. Rationale for Choice of Acquiring firm and Target firm in each of the six combinations:
In each of the 6 combinations, there will be one acquiring firm and one target firm. Ex: in combination WY, one has to be the acquirer and the other target. In this section, *student E will decide for each combination, out of the two firms, which is the target firm and which one is the acquiring firm*. Along, with that a proper justification for the choice of target and acquiring firm in each case has to be provided.

K. Using excel files 4, 5 and 6:

Now, for each of the six combinations of the firms, students E has to input data in all the 3 excel files, namely: lboval.xls, controlvalue.xls and synergyvaluation.xls.
Basically, student E has to analyze 6 merger situations.
There is a need to provide, a brief, justification about how the data has been entered in the excel sheet. For the sake of simplicity, explanation is needed for only 1 merger combination. But output results need to be written in this section for each of the six combinations.

L. Result Analysis:

There will be 3 main outputs for each of the above six merger combinations. These are: Leveraged Buy Out/Merger Analysis, Value of Control and Synergy. For each of the six merger cases, a discussion needs to be presented based on the above 3 inputs.
Ex: if synergy is very less, then what can be other possible reasons of acquisition. (Note that the answer needs to be firm specific, not general. Like elon musk bought twitter for more than just economic reason, he bought it for control on a social media giant which has been acting as a censor in the past years by banning several people like Donald trump).

M. Implications: Appropriate Purchase Consideration & choice of Payment (cash option or equity option):

What is the end result of a merger analysis? It is to decide the purchase consideration, amount of merger premium, and mode of payment (equity option, or cash option). So, for each of the six merger combination, the 5^{th} student has to decide the purchase consideration, amount of merger premium, and mode of payment (equity option, or cash option). A justification needs to be provided for the same.

IMPORTANT POINTS

- All students are expected to go through the videos uploaded on MS Teams before attempting to fill the excel sheets. Note that none of the videos and concepts are new, and nearly every concept has already been applied in assignment that was done in previous semester in the courses Financial Statement Analysis and Corporate Valuation. The videos are being uploaded to brush up the concepts and conduct an accurate valuation of the mergers.
- A separate video on navigating the Securities Exchange Commission Website has been put on MS Teams.
- The work of student E cannot start unless and until the students A, B, C and D submit their preliminary data to student E. Hence, it is required that all the relevant data be provided to student E by 14^{th} May, 2022.
- Students are encouraged to discuss any difficulties which they might face while doing the assignment. But in any case, students shouldn't consciously enter incorrect data and try to get the output from the excel sheets. This will attract heavy penalty in terms of

marks being awarded, because wrong inputs in the excel sheet will render the entire assignment output incorrect.

- Questions and Answers related to Mergers and Acquisitions can be referred for having conceptual clarity regarding the basics of mergers.
- After reading this instruction manual, it is natural to feel overwhelmed. But be assured that the work is not so overwhelming. The reason for this manual being lengthy is that, an attempt has been made to ensure consistency in results and contributions of each student. The aim of this assignment is to give a hands-on experience on the subject of mergers and acquisitions. To do the same, each and every step that needs to be taken by the student has been elaborated in this manual. It is hoped that after the completion of this assignment students will be very comfortable in the subject.
- The detailed instruction on how to use each of the Excel file, and the worksheets within each file have been provided in the following section.

EXCEL FILES TO BE USED

- Understand the difference between an Excel 'File', and a 'worksheet/sheet'. In this assignment we will be dealing only with 6 excel files, namely: Model.xls, fcffsimpleginzu.xls, fcfeginzu.xls, lboval.xls, controlvalue.xls and synergyvaluation.xls. Now, within each of these 'files', there are several 'sheets' like Input sheet, R&D converter etc.
- Each excel sheet, and relevant videos, can be accessed from MS Teams.
- The labelling of the files is as below:
    - File 1: model.xls
    - File 2: fcffsimpleginzu.xls
    - File 3: fcfeginzu.xls
    - File 4: lboval.xls
    - File 5: controlvalue.xls and
    - File 6: synergyvaluation.xls

- The above are the main six excel files to be used by students. There are additional excel files also, which will be helpful in calculation.
    - countrytaxrates.xls
    - returncalculator.xls

LEGEND:

- The presence of an * implies the following:- Hover the cursor over the respective cell to get detailed instructions on filling the respective cell.
- B39: means for input in cell B39 of that worksheet. Similarly, D28 means cell D28.

File 1: Model.xls

1. This sheet is supposed to be used by students A, B, C and D. The purpose of this sheet is to allow you to decide which DCF model is best suited for your firm.
2. This excel file contains a single sheet only. Start filling this sheet as instructed below:
3. Cell D8: enter YES if the net income is positive
4. If your firm's earnings are Positive follow steps 5-8. If negative, then follow step 9.
5. E11: Use Prowess database/google to find the inflation rate in your firm's country.
6. Cell E12: find the Interest rate on an Inflation-indexed bond (nominal interest rate)
7. Cell F14: enter the expected growth rate in earnings of your firm. if the forecast for growth rate is unavailable use the last available value.
8. Cell F15: Enter YES if your firm has a sustainable competitive advantage. This is a subjective judgement so be careful before entering yes/no. Refer to recent news and articles related to your firm.
9. Cell F22-F26: Fill YES/NO, after researching about fundamentals of the company.
10. Cell F28: calculate the current Debt ratio of your firm.

$$Debt\ ratio = \frac{Market\ value\ of\ Debt}{Market\ value\ of\ Debt + Market\ value\ of\ Equity}$$

11. Cell F29: Fill YES/NO, based on the subjective judgement about the debt ratio.
12. Cell F32: enter the cumulative dividend paid by your firm on its common stock in the past trailing twelve months.
13. Cell F33: calculate the Capital expenditure and working capital requirements. This can be obtained from your firm's annual statement (Form 10k) downloaded from SEC website.
14. Data for steps 16-19 has to be obtained for the current year.
15. Cell E35: enter the Net Income before extraordinary items from last year
16. Cell E36: enter Depreciation and Amortization (refer 10 k report) for the recent year of your firm
17. Cell E37: enter the total capital spending (including Acquisition) for the most recent year
18. Cell E38: enter the change in non- cash working capital. If there is a decrease put -ve sign
19. Cell G40: this is the output that will automatically be computed based on inputs entered
20. Within the highlighted box under the heading 'Output from the model' you will find the type of the model, level of earning, length of the growth period etc. for your firm.

File 2: fcffsimpleginzu.xls

Note 1: There are 10 sheets within this excel file and the steps for each sheet have been explained below. The most important sheet is the 'Input sheet' as the other sheets will automatically calculate the required data using the data entered in the input sheet.

Note 2: Detailed video on filling this sheet can be found here:

https://www.youtube.com/watch?v=ufg-sMoEWNQ&list=PLUkh9m2BorqmRAGzJb5OIvTAKZZu9HWF-&index=17

Let's start filling the Worksheets, in the fcffsimpleginzu.xls file.

Sheet 2.1: Input Sheet

1. B1 & B2: enter the date of Valuation and name of your company
2. B5: from the drop-down menu select the country in which the firm operates.
3. B6: from the drop-down menu select the industry in the which firm operates. In case your firm operates in multiple businesses refer to the 'cost of capital worksheet' in this file.
4. B8 & B9 = *
5. B10: enter the Interest expenses from the annual statement report
6. B11 & 12 = *
7. B13: enter YES if you have R&D expenses to capitalize (refer to annual statement). Go to 'R&D sheet' to capitalize R&D expenses
8. B14: enter YES if you have operating lease commitments (refer to annual statement). Go to 'operating lease converter sheet'
9. B15-B21 = *
10. B23:

    Expected revenue in n years = Revenue of n-1 year X (1+ growth rate) X market share of your firm= x

    Expected compounded growth rate = $(x/100)^{1/n}$-1
11. B24: Operating margin = Operating Income/ revenue
12. B25- B27: *
13. B28: $\frac{sales}{Capital}$
14. B29 – B30: Subjective decision based on expected Sales/Capital ratio
15. B32: Risk free rate of the country of the firm's operation

16. B33: Go to ‘cost of capital worksheet’. After entering the inputs in this sheet, cell E50 will give cost of the capital *
    a. The Cost of Capital worksheet has an inbuilt ERP calculator also. It is the same that was used in previous semester.
17. B35-B38: * fill data according to annual statement reports

Sheet 2.2: Valuation Output

The entire sheet is an Output sheet. No data entry is needed.

Sheet 2.3 to 2.6: Stories to Number

The entire sheet is an Output sheet. No data entry is needed.

Sheet 2.7: Cost of Capital

1. B6: No of Shares outstanding
2. B7: Current market price per share
3. For the entire sheet refer to previous semester calculations for your firm after updating relevant values.

Sheets 2.8 & 2.9: R&D Converter and Operating Lease Converter

For the entire sheet refer to previous semester calculations for your firm after updating relevant values.

Sheet 2.10: Country Equity Risk Premium

These are the latest country-related data published by Aswath Damodaran containing the equity risk premium and country risk premium.

File 3: fcfeginzu.xls

Assumptions	1. The firm is expected to grow at a higher growth rate in the first period.
	2. The growth rate will drop at the end of the first period to the stable growth rate.
	3. The dividend payout ratio is consistent with the expected growth rate.
Inputs needed	1. Length of high growth period
	2. Expected growth rate in earnings during the high growth period.
	3. Dividend payout ratio during the high growth period.
	4. Expected growth rate in earnings during the stable growth period.
	5. Expected payout ratio during the stable growth period.
	6. Current Earnings per share
	7. Inputs for the Cost of Equity
How the model wor	The expected dividends are estimated for the high growth period, using the payout
	ratio for the high growth period and the expected growth rate in earnings per share.
	The expected growth rate is estimated either using fundamentals:
	Expected growth = Retention Ratio * Return on Equity
	Alternatively, you can input the expected growth rate.
	At the end of the high growth phase, the expected terminal price is estimated using
	dividends per share one year after the high growth period, using the growth rate
	in stable growth, the payout ratio in stable growth and the cost of equity in stable
	growth.
	The dividends per share and the terminal price are discounted back to the present at
	the cost of equity changes.
	If your cost of equity in stable growth is different from your cost of equity in high
	growth, the cost of equity in the second half of the stable growth period will be
	adjusted gradually from the high growth cost of equity to a stable growth cost of
	equity.
Options Available	You can make this model into a three stage model by answering yes to the question
	of whether you want me to adjust the inputs in the second half of the high growth
	period. If you do, I will adjust the growth rate, the payout ratio and the cost of
	equity from high-growth levels to stable growth levels gradually.
	You can also make this a stable growth model by setting the high
	growth period to zero.

There are several sheets within this excel sheet. We will deal with each one of them individually. We will start filling the 'input' sheet.

Input Sheet:

1. B2: * : Fill the Net Income using 10K. If the earnings are negative, then normalize them using another sheet in the same file, named "normalized earnings".
2. B3: * : use 10K
3. B4: * : If it's a Yes, then use another sheet in the same file, named "R&D converter".
4. B5: *
5. B6: Get this value from 10K.
6. B7: Market Value of Equity = (No. of Shares Outstanding) × (Current Share Price)
7. B8 to B12: Use the annual 10K reports for these cells.

8. B13 & B14: Enter Yes, or No
9. B16 to B19: automatically calculated.
10. B22: Calculate the bottom-up beta using the ‘Beta calculator’ sheet in the excel file.
11. B23: Long-term government bond rate of the country that your firm operates in.
12. B24: Calculate the ERP using the ‘ERP Calculator’ sheet in the excel file
13. B27: Number of years of high growth. Max. allowed in 15 years.
14. B29: *
15. B30: If B29 is no, then enter value here.
16. B32: If B29 is yes, then these data will be needed as inputs to calculate the growth rate from the fundamentals. Now, if B29 is yes, then also B32 need not be entered manually if cells before have been filled properly.
17. B33 & B43: automatically filled.
18. B35: If inputs have to be altered for the high growth period then select Yes.
19. B37: Enter the value for ROE during the high growth period.
20. B38: Enter the Equity Reinvestment Rate.
21. Now, we shift to into the data for stable growth period.
22. B41 to B46: Enter inputs for stable growth period.
23. B48: automatically calculated.
24. All the inputs have been finalized. We are ready to see the output.
25. Open the sheet ‘FCFE valuation’. This contains the output of the entire excel sheet. The cell E29 of this sheet gives us the value per share of our firm.
26. The sheets like ‘Industry Averages’ and ‘Country ERP’ are data sheets containing the respective data.

File 4: lboval.xls

In case of Leverage Buyout this sheet helps compute the value of equity and the firm

1. C3: enter the current market price per share
2. C4: enter the no of share outstanding in millions
3. H3: current debt outstanding in millions
4. H4: enter other costs involved in the deal like Transaction costs, Investment banker fees etc.

5. C5: automatically calculated and is the total cost of the deal
6. In the below steps, we have to decide how the deal will be financed
7. A Debt Repayment schedule is to be prepared. For the first run take random values to complete the schedule. If cash flows to equities is negative, then modify the schedule.
8. B10: enter the equity that will be used to finance the deal
9. B11: enter if any Preferred stock will be given
10. B12-B15: enter the amount of the different types of debt that will be used to finance the deal
11. C21: enter the growth rate of the revenues using formula

    Expected revenue in n years = Revenue of n-1 year X (1+ growth rate) X market share of your firm= x

    Expected compounded growth rate = $(x/100)^{1/n}$-1
12. C30: current T-Bill rate of your firm's country
13. G30: Market Risk premium, refer country risk sheet of fcffsimpleginzu.
14. C31: enter ordinary tax rate. Note that country's corporate tax rate need not be firm's tax rate. The effective tax that a firm pays needs to be entered. Look annual statements for this information. The excel file 'countrytaxrates' has the marginal tax rates for all countries in the year 2021.
15. G31: enter Regression beta of the firm obtained from fcffsimpleginzu
16. Using the current Income statement fill the following cells:-

    C43 to C46; H44 to H46
17. H43: enter the Cost of Goods sold = $1-\frac{EBIT+Depreciation}{Revenues}$
18. All the other cells in the sheet will be auto-filled.

File 5: controlvalue.xls

This file analyses the value of control in a firm. In simple terms, Control can be defined as the maximum merger premium that can be paid, beyond which the NPV for the merger will become negative.

In terms of formula,

Value of Control = (Value of Optimal) – (Value of Status Quo)

Value of Status Quo: This is the "Value of Firm" at present, given the current pre-tax cost of debt, Operating Income (EBIT), Reinvestment Rate etc.

Value of Optimal: This is the "Value of Firm" that can be attained/achieved if the firm operates at optimal conditions like Optimal Capital, reinvestment rate. This can be achieved by steps like cost-cutting etc. In this situation, the firm is able to reduce its Cost of Capital, which leads to an increase in "Value of Firm". Remember, that this is the Ideal situation of firm management.

Thus, ***Value of Control can be explained*** *as the difference between "what the firm has potential to achieve" and "where it currently stands".*

In mergers, Value of Control plays a very important role because how much merger premium that the acquirer is ready to pay depends on this value. If the acquirer estimates high Value of Control, then they will be ready to pay much higher merger premium. This is what happened when Facebook purchased WhatsApp. They had estimated high Value of Control and thus paid significant purchase consideration. Keep in mind, that the Value of an Asset is the Present Value of Future Expected Cashflows. One who forgets this rule, forget the essence of corporate valuation. Coming back to the excel sheet.

Below steps have to be followed to fill data under the "Optimal" column C.

Hints on control value

- Check on capital structure to see if a different mix can lower cost of capital (Use capital structure spreadsheet which is available online)
- Check on current pre-tax operating margin and check against industry averages (the "Industry Averages" sheet is present in the excel file itself.). This may provide clues for potential cost cutting
- Check after-tax return on capital. If it is below cost of capital, set at least to cost of capital. If it is above the cost of capital, check against industry averages and historical trend line.
- If return on capital is high, check reinvestment rate. If it is very low, check to see if there is potential for increase.
- If the firm has potential for competitive advantages, see if you can lengthen the growth period (will work only if there are positive excess returns).

Note: Always work within the realm of the possible…

Now, fill each cell as instructed below. (But remember, understand before you fill)

1. B2: enter current Risk-free rate. Refer video 'riskfree' if needed.
2. B3: enter Implied Equity Risk Premium. Refer the video "Implied ERP' if needed.
3. B7: enter the current regression beta for your firm. Preferable use Bottom-up beta. Refer video's 'Regression' and 'bottom-up beta', if needed.
4. B8: Enter Pre-tax Cost of Debt. You need the market value of debt and a pre-tax cost of debt to compute a cost of capital. To get the market value of debt, you first have to determine what items on the balance sheet qualify as debt and convert the book value of the debt into market value. You also have to bring lease and other contractual commitments into the equation. Finally, all of this will require that you estimate a current, long term cost of borrowing. Refer "debt" video.
5. B10: Calculate the current Debt-to-Capital Ratio and enter here.
6. B12: use latest 10K statement to enter the Revenues.
7. B13: Calculate and then Enter the value of Earnings Before Interest and Taxes.
8. B15: Calculate the Pre-Tax Return on Capital. Refer formula below:

$$Return\ On\ Capital\ (ROC) = \frac{EBIT}{Capital\ Invested\ in\ Operating\ Assets} = (Pre - Tax\ Operating\ Margin) \times \frac{Sales}{Book\ Value\ of\ Capital}\ OR$$

9. B16: Enter the Reinvestment Rate. It is the proportion of after-tax operating income that goes into net new investments and the return on capital earned on these investments

$$\text{Reinvestment rate} = \frac{\text{Capital expenditure} - \text{Depreciation} + \text{Change in noncash WC}}{\text{EBIT}(1 - \text{Tax rate})}$$

10. B18: Enter the length of growth period.
11. C7, C12, C13: It will be automatically calculated. Do not enter anything.
12. C8 to C10, C15, C16, C18: enter values for optimal firm management. Follow section on previous page under "Hints of control value".
13. Rest all other cells in the sheet will be automatically calculated. Note down the outputs for further interpretation.

File 6: synergyvaluation.xls

This sheet provides the value of synergy in a merger.

Follow steps for each cell as below:

1. B2: enter current Risk-free rate. Refer video 'riskfree' if needed.
2. B3: enter Implied Equity Risk Premium. Refer the video "Implied ERP' if needed.
3. Values of rows 7 to 18 have to be entered for 2 firms, namely: Acquiring firm and Target Firm.
4. B7: enter the current regression beta for your firm. Preferable use Bottom-up beta. Refer video's 'Regression' and 'bottom-up beta', if needed.
5. B8: Enter Pre-tax Cost of Debt. Refer "debt" video.
6. B9: Enter your firm's tax rate. Note that country's corporate tax rate need not be firm's tax rate. The effective tax that a firm pays needs to be entered. Look annual statements for this information. The excel file 'countrytaxrates' has the marginal tax rates for all countries in the year 2021.
7. B10: Calculate the current Debt-to-Capital Ratio and enter here.
8. B12: use latest 10K statement to enter the Revenues.
9. B13: Calculate and then Enter the value of Earnings Before Interest and Taxes.
10. B15: Calculate the Pre-Tax Return on Capital. Refer formula below:

$$Return\ On\ Capital\ (ROC) = \frac{EBIT}{Capital\ Invested\ in\ Operating\ Assets} = (Pre - Tax\ Operating\ Margin) \times \frac{Sales}{Book\ Value\ of\ Capital}\ OR$$

11. B16: Enter the Reinvestment Rate. It is the proportion of after-tax operating income that goes into net new investments and the return on capital earned on these investments

$$\text{Reinvestment rate} = \frac{\text{Capital expenditure} - \text{Depreciation} + \text{Change in noncash WC}}{\text{EBIT}(1 - \text{Tax rate})}$$

12. B18: Enter the length of growth period.

All other cells will be automatically calculated. Cell B38 will give the Value of Synergy.