1. **ELC Co. is evaluating the performance of one of its controlled companies, Liam Co, through relative valuation. Liam Co. is an innovative company founded in 2001. Its business is specialized in the development, design, production and sale of all-electric vehicles. Additionally, the company manufactures, installs and maintains solar and energy storage systems. Two-thirds of Liam's revenues are from vehicles and one-third of Liam's revenues is from energy systems.**

   Liam Co. operates all over the world. Its headquarter is in California, and its two major manufacturing plants are in China and the USA. Despite its sales are growing rapidly, Liam's production costs are still relatively high and its income has not turned into positive yet. One of the main reasons is the fact that Liam purchases the majority of the components for its production from third-party vendors. The vehicle market is facing a negative trend, with an overall reduction in sales of around 15%. The energy systems market is, instead, constantly growing by 5% per year.

   As follow, you can find some financial data of Liam Co:

   - **Total revenues: 23,128 k$**
   - **Operating costs (NOT including D&A): 23,455 k$**
   - **Depreciation and Amortization (D&A): 8,233 k$**
   - **Bank debt: 10,000 k$**
   - **Cash: 1,714 k$**
   - **# shares: 171,600**

   Liam's stock price has shown a 20-times increase since its IPO, even though the firm has been generating negative cash flows and so far has paid no dividends.

   Based on the available financial data reported in the table, and rounding the calculation at the second digit, which one of the following statements is TRUE?

Data in k$	EV	Revenue	EBITDA	EV/Revenue	EV/EBITDA
Vehicle manufacturers					
FMC	160,385	145,460	14,639	1.10	10.96
VAG	133,728	147,049	21,892	0.91	6.11
GMC	241,780	265,148	38,015	0.91	6.36
Energy systems manufacturers					
PEG	5,140	473	305	10.87	16.85
TFP	8,675	767	1,012	11.31	8.57
Tech companies					
SI				3.50	12.10
ALP				4.20	35.50
AM				3.20	16.60

A. The enterprise value of Liam Co. is negative and around – 4,620.51 k$
B. The value of Liam's shares, based on the relative valuation, should be 66.28 $ / share
C. **The equity value of Liam Co. is 92,320.80 k$**
D. The value of Liam's shares, based on the relative valuation, should be 558.22 $ / share

[4 POINTS]

Solutions

Liam Co is a developing company which still does not have positive profit nor EBITDA or EBIT, i.e. one of the best multiples is EV/Revenues, which is also the only usable one based on the available data.
There is nothing said about the technological components in the vehicles or the energy systems production, therefore Tech companies should be excluded. Further the weighted average should be applied, as major 2/3 of revenues are coming from vehicle production.

Weighted average EV / Revenue = ((1.10 + 0.91 + 0.91)/3)*2/3 + ((10.87 +11.31)/2)*1/3 = 4.35

EV = 4.35 *23,128 = 100,606.80
E = 100,606.80 – 8,286 = 92,320.80
PRICE PER SHARE = 92,320.80 / 171.6 = 538

2 You are trying to calculate the value of EBIT margin (ROS) of Company ALFA for 2019 – a company operating in the construction industry. You do not have access to the complete financial statements, but you were able to gather these data:

- **Total Assets = 200 mln €**
- **Total (Current and Non-Current) Liabilities = 100 mln €**
- **Asset Turnover Ratio (AT) = 1.5**
- **Effective tax rate = 40%**
- **Net Profit = 24 mln €**
- **Financial Incomes = 2 mln €**
- **Financial Expenses = 7 mln €**

On the base of these data, it is TRUE that:

[4 POINTS]

A. EBIT margin (2019) = 12.5%
B. EBIT margin (2019) = 15%
C. EBIT margin (2019) = 17.5%
D. None of the other proposed answers

Solutions:
Equity = 200 (total assets) – 100 (total liabilities) = 100 mln €
Revenues = 200 (total assets) * 1.5 (asset turnover ratio) = 300 mln €
EBIT = 300 (revenues) * X (EBIT margin)
EBT = 300 * X + 2 – 7
Net profit = [300*X - 5] * (1-0.4) = 24
X (EBIT margin) = 15%

3. **Company A is a multinational company that produces and sells electronic equipment and provides IT support services. The CEO has recently asked for some forecasts to evaluate the Enterprise Value. Reliable forecasts are available up to 2025 and estimated data [mln€] referred to the end of 2025 are as follows:**

- **Financial Income: 10,000 mln€**
- **Financial Expenses: 8,000 mln€**
- **Income Taxes (P&L): 9,000 mln€**
- **Net Profit (P&L): 22,000 mln€**
- **New Loans: 4,000 mln€**
- **Dividends paid: 7,000 mln€**

You also know that:

- **Debts in 2024 are forecasted as equal to 20,000 mln€**
- **There will be no repayment of debt in 2025**
- **Dividends paid in 2024 are equal to the ones paid in 2025**
- **No increase in share capital is forecasted**
- **Ke remains stable for the next 6 years at 6%**
- **$TV_{E\ 2025}$ =10.000 mln€ (TV has been calculated with perpetuity with no growth)**

No data are available regarding NWC, D&A and CAPEX, but they are not negligible. On the bases of the <u>available data,</u> please estimate the FCFF in 2025.

[5 POINTS]

A. FCFF in 2025 will be negative and around - 980 mln€
B. FCFF in 2025 will be around 1,600 mln€
C. FCFF in 2025 will be around 15,180 mln€
D. FCFF in 2025 will be around 2,180 mln€

Solutions

Given the available data, FCFF cannot be calculated from EBIT (no info on D&A, NWC and CAPEX are available). However, it can be calculated starting from FCFE.

FCFE in 2025 = $TV_{E\ 2025}$ * ke = 10,000 mln € * 0.06 = 600 mln€

Another relevant step is the calculation of the tax rate

EBT = Net Profit + Income Taxes = 31,000 mln€
Tc = Taxes / EBT = 0.29

FCFF is calculated as follows

FCFE	600 mln€
+ Financial Expenses (net of taxes)	5,680 mln€
- Financial Revenues (net of taxes)	7,100 mln€
+ dividends paid	7,000 mln€
- new loans	4,000 mln€
FCFF	**2,180 mln€**

4. **Company C is interested to calculate its beta unlevered (Bu) using the following data:**
   - **It is based and active in the Eurozone;**
   - **It has an average cost of capital of 6.50%;**
   - **The weight of Equity on the capital structure is 60%**
   - **Ke, calculated with the CAPM, is around 7.5%**
   - **NWC (on December 31st 2019): 9,000 €**
   - **Reserves (on December 31st 2019): 22,000 €**
   - **Debt (on December 31st 2019): 35,000 €**
   - **Financial Expenses (on December 31st, 2019): 2,205 €**

Further information on the general market is reported in the table below.

Indexes
- **DAX(German): 6.30%**
- **EUROSTOXX: 5.50%**
- **DOWJONES: 4.50%**

Bonds
- **German: 0.10%**
- **French: 0.50%**
- **US: 1.10%**

Based on the available data, calculate Beta unlevered (Bu) of Company C.

[4 POINTS]

A. Data are not sufficient to calculate Bu
B. Bu of Company C is around 1.00
C. Bu of Company C is around 0.78
D. Bu of Company C is around 0.89

Solutions

E/(D+E) =60%
D/(D+E) =40%
Kd = 2,205/35,000 = 6.3%
E= (0.6/0.4) * 35,000 = 52,500

(1-tc) = [WACC – Ke*E/(E+D)] / [Kd* D/(D+E)]
(1-tc) = [6.50% – 7.50%*60%] / [6.3%* 40%] = 80%
tc=20%

BL= (Ke-rf) / market premium
BL= (7.5%-0.1%) / 5.4% = 1.37
BU= BL / (1 + (1-tc) * D/E))
BU= 1.37 / (1 + (0.80)*0,67)) = 0.89

5. **Company ZZZ expects to buy components for 300,000 € in the second half of 2020 from one of its main suppliers. The purchasing orders (100,000 €/each) should be issued on 1st Sept, 15th Oct and 1st December. The purchasing manager has just re-negotiated the terms of the contract with this supplier. In particular, it managed to increase the delay of payments from 60 to 90 days. This news terms will be valid starting from 1st August 2020. What is the expected impact of the new terms of payment on the Income Statement and the Cash Flow Statement of Company ZZZ?**

[2 POINTS]

A. Income Statement: no change. Cash Flow Statement: Total Net Cash Flow increases by 200,000 €
B. Income Statement: costs decrease by 100,000 €. Cash Flow Statement: Total Net Cash Flow increases by 100,000 €
C. **Income Statement: no change. Cash Flow Statement: Cash Flow from operating activities increases by 100,000 €**
D. Income Statement: no change. Cash Flow Statement: Cash Flow from financing activities increases by 100,000 €

Solutions:

A. Wrong: December order is taken into account
B. Wrong: a change in the payment terms do not affect the Income Statement (ceteris paribus)
C. Correct: the change concerns just the October purchase order – the December order would be paid in 2021 in any case
D. Wrong: the impact is on the cash flow from operating activities

6. According to the Financial Leverage formula:

[2 POINTS]

A. Increasing the D/E ratio has always a positive impact on ROE

B. If D/E = 0, ROE always equals ROA

C. The capital structure of the company (i.e. the D/E ratio) amplifies the fluctuations (i.e the variance) of ROE (i.e. the higher D/E, the higher the change in the value of ROE for a given change in the value of ROA)

D. The capital structure of the company (i.e. the D/E ratio) amplifies the fluctuations (i.e the variance) of ROE (i.e. the higher D/E, the higher the change in the value of ROE for a given change in the value of ROA) but only if ROA is higher than the average cost of capital measured as financial costs over financial debts

Solutions:

A. Wrong (it depends on (ROA – r) sign)

B. Wrong (it depends on "s" value)

C. Correct (that's why risk depends on D/E value)

D. Wrong (the capital structure of the company (i.e. the D/E ratio) always amplifies the fluctuations (i.e. the variance)

7. In a market-based transfer price system, it is TRUE that:

[2 POINTS]

A. When the product transferred by the selling business unit is present on the market with different quality levels, the transfer price should be equal to the average of the prices set by competitors

B. The transfer price is always higher than the market price to include a mark-up (which allows the selling unit to make a profit)

C. The transfer price is always lower than the market price due to the lower transaction costs faced by the selling unit (compared with the costs faced by the corresponding companies that operate on the market)

D. None of the other answers

Solutions

A. Wrong: in case of products with different levels of quality, the market based TP are usually replaced by cost based TP

B. Wrong: the market price should enable the selling unit to be profitable (if as efficient as the most efficient companies operating on the market)

C. Wrong: also the buying unit saves transaction costs, so there is no general rule

D. Correct

8. Which of the following statements about leasing contracts is TRUE:

[2 POINTS]

A. Leasing contracts can be distinguished into two types: with recourse or without recourse

B. The choice of a company of resorting to a leasing contract (instead of buying a new asset) impacts the calculation of the WACC

C. At the end of the life of the leasing contract, the equipment reverts back to the lessee

D. The lessee will have to record in its income statement the payment of the leasing rent

Wrong answers:

A. Wrong, such distinction is referred to factoring contracts

B. Correct: The choice of a company of resorting to a leasing contract (instead of buying a new asset) impacts the calculation of the WACC because starting from 2019 companies are required to record the right of use among assets and the corresponding Debt among financial liabilities, impacting the D/E ratio

C. Wrong, at the end of the life of the leasing contract, the equipment reverts back to the lessor and the lessee could redeem it

D. Wrong, the lessee will have to record the depreciation of the right of use and the intrest quota in the income statement

9. Which of the following statements about the production budget is TRUE:

[2 POINTS]

A. It defines the starting level of inventories
B. It defines the entity of ending inventories that will be necessary to allow the Logistics Unit to meet the service level agreement set with the distributors/customers
C. It is defined after the cash flow budget
D. It allows verifying that the production capacity will meet the resources needed for the overall production

Solutions

A. Wrong: the starting inventories are an input data for the production budget

B. Wrong: the ending inventories are an input data for the production budget

C. Wrong: the production budget is drafted before the cash budget

D. Correct: it allows verifying that the production capacity will meet the resources needed for the overall production

10. Concerning Flexible EBIT, which of the followings statements is TRUE?

[3 POINTS]

A. **It would have been the budgeted EBIT if the company would have known the actual volume of sales**
B. It is the actual EBIT when the budgeted EBIT has been outperformed
C. It allows decomposing the difference between actual and budgeted EBIT into the variance due to the variation of selling prices and the variance due to the variation of costs
D. It is useful during the budgeting process for running sensitivity analysis and managing uncertainty

Solutions

A. Correct answer

B. Wrong: the flexible EBIT is not the actual EBIT

C. Wrong: the decomposition is into the variance due to the variation of volume of sales and the variance due to the variation of efficiency

D. Wrong: Flexible EBIT is used in the reporting phase and not in the budgeting phase