Accounting Finance and Control

Written test – 25th January 2021

Q1_ POINTS 2

Company Essex is evaluating the possibility of changing its inventory policy (shifting from LIFO policy to FIFO policy) as it is planning to move to international standards. Company Essex is preparing the operating budget for the year (X +1) and wants to understand possible differences in the key figures of the operating budgets due to the adoption of the FIFO logic versus LIFO logic for evaluating its inventories (starting from year X+1). Company Essex does not keep inventories of work in progress and final products, but only of raw materials. Given this premise, which of the following sentences is correct?

a) The adoption of LIFO or FIFO logic is NOT a relevant piece of information for drafting the operating budgets.
b) If the value of final inventory of raw materials of year (X) is lower than that at the end of year (X+1) there is NO difference in the EBIT of the year (X + 1) if the company switches from LIFO to FIFO logic (whatever the purchasing price of the raw materials in the two years)
c) If the final inventory of raw material of year (X) is 0 and the final inventory of raw material of year (X+1) is > 0, and the price of the raw materials purchased in the year (X+1) varies month by month, there is NO difference in the EBIT of the year (X + 1) if the company switches from LIFO to FIFO logic
d) If the final inventory of raw material of year (X) is greater than 0, while it is null at the end of year (X+1) there is NO difference in the EBIT of the year (X+1) if the company switches from LIFO to FIFO logic.

Solution

a) It Is wrong as the policy adopted for the inventories affect the operating budgets
b) Wrong because there have been purchases in year (X+1) and the composition of final inventory of raw materials (X+1) depends on the fact that the company uses FIFO or LIFO
c) It is wrong because, as during the year the price of raw material changes, the evaluation of the inventories is different moving from a LIFO to a FIFO logic)
d) It is true because the variation of the inventories is always the same as the final inventories is 0.

Q2_POINTS 2

Ceteris paribus (i.e., all the rest unchanged), which of the following statements is correct about the Equity Value (E) of a company?

a) Equity Value is not affected by the cost of debt (kd) because the discount rate is Ke (i.e., the cost of shareholders' capital).
b) Equity Value is affected by the cost of debt (kd) because the discount rate is the WACC.
c) Equity Value is affected by the cost of debt (kd) because it affects the calculation of FCFF.
d) None of the other answers

Solution

The cost of debt (i.e., interest rate) affects the amount of interests paid and the calculation of FCFE (but not of FCFF)

Q3 _POINTS 2

Company A is a pharmaceutical start-up founded 18 months ago. The company is developing its first product (a new synthetic protein) that will be available at beginning of 2023. So far, the company had no revenues and got significant funds from banks to purchase the laboratory equipment and the machinery needed for running the R&D activities.

What multiple should be preferred to evaluate Company A?

a) Relative valuation should be assets-based, and the most correct multiple would be EV / Sales.
b) Relative valuation should be assets-based, and the most correct multiple would be EV / EBITDA.
c) Relative valuation should be equity-based, and the most correct multiple would be Price-to-Earnings (P/E).
d) None of the other answers.

Solution

Company A is capital intensive and assets-based multiples should be preferred. The typical multiple for pharmaceutical companies is EV/EBITDA. However, Company A is still a young start-up whose products are not on the market. In this view, revenues are still zero and cannot be used as multiple. The same applies to EBITDA that is probably negative. A potential multiple might be EV/R&D expenses.

Q4_THEORY_VALUE DRIVER (AGOSTINO)_POINTS 2

Which of the following is an example of a productivity indicator for a manufacturing company?

a) (Units or orders delivered on time) / (total units or orders shipped)
b) Throughput time
c) (Total scrap)/ (Total product runs)
d) None of the other answers.

Solution

a) it measures time (revenue driver)
b) it measures time (cost driver)
c) it measures the quality of the production process (cost driver)

Q5_THEORY_CORPORATE COSTS (ARENA)_POINTS 2

Which of the following statements about Corporate Costs is correct?

a) Corporate Costs can be distinguished into three main groups: direct costs, indirect costs, and period costs.
b) Corporate Costs can be allocated to Business Units using the following approaches: a market-based approach or a cost-based approach; the cost-based approach can rely on either actual or standard costs.
c) A partial corporate cost allocation based on proportional allocation drivers allows to fairly allocate costs related to spare capacity among the Business Units.
d) A partial corporate cost allocation based on fees should be preferred in the case of costs related to spare capacity.

Solution

a) Wrong, corporate cost are typically indirect, period costs.
b) Wrong, the market based approach and the cost based approach are different methods for computing transfer prices.
c) Wrong, the proportional allocation method based on drivers amplifies problems associated to spare capacity.
d) Correct, the proportional allocation method based on fees allows to set apart cost of excess capacity without allocating them to the BUs.

Q6_4 POINTS

You know the following data about the company C.
Assets as of December 31st, 2020:

- Property, Plant, and Equipment: 100 mln€
- Goodwill: 200 mln€
- Equity Investments: 70 mln€
- Receivables: 40 mln€
- Cash and cash equivalents: 120 mln€

Liabilities as of December 31st, 2020:

- Share capital: 100 mln€
- Reserves: 40 mln€
- Net profit: 10 mln€
- Bank Debts: 230 mln€
- Benefits for employees: 120 mln€
- Payables: 30 mln€

The following two events will happen in the year 2021:

- Payment of dividends for 5 mln€;
- Depreciation of Property, Plant and Equipment for 10 mln€.

What is the potential effect of these events on the company accounts? Consider the related balancing accounts also and neglect any tax effect.

a) The Net profit (2021) might be negatively impacted by 15 mln€.
b) The Bank Debts (2021) might decrease to 225 mln€.
c) The Net profit (2021) might be negatively impacted by 10 mln€.
d) Cash and cash equivalents (2021) might decrease to 105 mln€

Solution
The first event has the following effects:

- Decrease of net profit (2020) of 10
- Increase of reserves (2021) of 5
- Decrease of cash and cash equivalents (2021) of 5

The second event has the following effects:

- Decrease of PPE of 10
- Decrease of net profit of 10

a) False, because the net profit should be determined by the economic flows that happen in 2021. The dividends distribution does not affect these flows.
b) False, because it assumes that the distribution of dividends has an impact on debts. Instead, the dividends distribution impacts the 2020 profit and cash.
c) True
d) False, because it assumes that depreciation costs have an impact on cash and cash equivalents. Instead, depreciations are non-monetary costs.

Q7 _4 POINTS

Company D operates in the food industry. The company is a French biscuit manufacturer, recognized as the second-biggest supplier of biscuits in France. You have the following data from the 2020 financial statements:

- Total Assets: 200 mln€
- Current + Non Current Liabilities: 90 mln€
- Asset Turnover Ratio (ATR): 1,9
- Effective Tax Rate: 35%
- Dividends distributed (on Profit 2019): 2 mln€
- Return On Sales (EBIT Margin): 8%
- Financial incomes for 2020: 1 mln€
- Financial expenses for 2020: 6 mln€

Based on these data, it is TRUE that:

a) ROE = 15.0%
b) ROE = 23.0%
c) ROE = 18.5%
d) None of the previous answers

Solution:
ROE = net profit/E
E = total assets – (current + non current liabilities) = 200-90= 110mln€
Revenues = total assets * asset turnover ratio = 200*1,9= 380mln€
EBIT = Revenues * ROS = 380*8%= 30,4mln€
EBT = EBIT+ Financial Incomes – Financial Expenses= 30,4+1-6= 25,4mln€
Net Profit = EBT – (EBT * Effective Tax Rate) = 25 - (25*35%)= 16,5mln€
ROE = (16,5/110)*100 = 15,0%

ROE = 23% is wrong as it does not consider tax rate in the computation of net profit
ROE = 18.5% is wrong as it does not consider financial incomes in the computation of net profit

Q8 _4POINTS

Consider the following data about the 2018 and 2019 financial statements of company E (values are in k€):

	Year 2018	Year 2019
Revenues	8,000	9,000
Inventories	1,000	1,200
Property, Plant and Equipment	5,000	6,500
Depreciation & Amortisation	650	800
Financial Expenses (net of Financial Incomes)	110	100
Net Profit (from Continuing Operations)	+1,708	+2,030
Operational Expenditures (D&A excluded)	4,800	5,200

You also know that:

- Net Profit from discontinued Operations: 0 (both in 2018 and 2019)
- Taxes on Profit are computed as a percentage of Profit Before Taxes
- Purchases were 60% out of Total Operational Expenditures (D&A excluded) both in 2018 and 2019
- Purchases and Revenues can be considered as equally spread throughout the different quarters (both in 2018 and 2019)
- Average DPO = 3 months (both in 2018 and 2019)
- Average DSO = 3 months (both in 2018 and 2019)
- Bank Debt repayments (2019) = 100 (k€)
- No new financial debts were asked in 2019
- Dividends paid in 2019: 10% of 2018 Net Profit
- VAT is 0%

Based on previous data, what was the value of the Free Cash Flow to Firm (FCFF) in 2019?

a) + 210,000€
b) + 1,100,000€
c) + 1,010,000€
d) - 130,800€

Solution:

	2018	2019
Revenues	8000	9000
Op.Ex.	4800	5200
D&A	650	800
EBIT	2550	3000
Fin Exp	110	100
EBT	2440	2900
Taxes on Profit	**732**	**870**
Net Profit	1708	2030

Tax rate = 870/2900 = 30% (the same happens in 2018: 732/2440)

Then we have to compute the Final Account Receivable and Payable in 2018 and 2019:

Final receivables	2000	2250
Final payables	720	780

Now we have all the information we need to compute FCFF and FCFE in 2019:

EBIT		3.000,00
- TAXES ON EBIT		- 900,00
+ DEPR/AMORT		800,00
+ DELTA NWC:		
+ ACC RECEIV (i-f)		- 250,00
+ INV (i-f)		- 200,00
+ ACC PAY (f-i)		60,00
- CAPEX		- 2.300,00
FCFF		**210,00**
- INTERESTS		- 70,00
- DEBT REPAYMENT		- 100,00
+ NEW DEBT		-
- dividends		- 170,80
+ new capital		-
FCFE		**- 130,80**

Wrong answers:
b) wrong sign of the Change in NOWC
c) wrong calculation of CAP.Ex (depreciation not included)
d) wrong (that's FCFE)

Q9 _4POINTS

Company A is located in Italy and it is not listed. It sells premium-price cosmetics products in the Euro Zone. You want to estimate its cost of capital. You know the following accounts from the Income Statement 2019 and the Balance Sheet 2019.

- Revenues = 1,000 mln €
- EBITDA = 350 mln €
- Financial costs to banks = 80 mln €
- Equity = 300 mln €
- Liabilities (excluding Equity) = 800 mln €
- Bank Debts = 600 mln €

Additionally, you know that the corporate tax rate is 35% and the risk-free rate is 0,78%. Finally, while the FTSE MIB is forecasted at 12%, the Euro Stoxx return at 10%, and the S&P500 at 14%.
The financial newspaper that you are reading reports financial data about potential comparable companies.

- Company B sells genetics-based pharmaceuticals in the Far East emerging markets and its $\beta_U = 0.93$.
- Company C sells high-quality cosmetics products in the Euro Zone and its $\beta_U = 0.51$.
- Company D sells high-quality cosmetics products in the Euro Zone and its $\beta_U = 0.49$.

Considering the available information, what is the estimation of the cost of equity (ke) for Company A?

a) ke = around 11.4%
b) ke = around 14.4%
c) ke = around 13.6%
d) ke = none of the other answers

Solution
Companies C and D are the only comparable companies. Company B must be excluded because it sells a different product (i.e., genetics-based pharmaceuticals) in a different market (i.e., Far East emerging markets).
In this light, β_U (company_A) = (βU (company_C) + β_U (company_D))/2 = 0.5
This means that β_L (company_A) = 0.5*(1+(1-35%)*(600/300)) = 1.15
Considering that the risk-free rate is 0.78% and the market return is 10% (Euro Stoxx return), ke is around 11.34%.

b) is wrong as it considers as comparables B,C,D
c) is wrong as is considers as comparable C and D with rm of Italy

Q10 _4POINTS

Group AERO is composed by the parent and three subsidiaries: A, B and C. A is the upstream company of AERO that supplies and sells internally components to both B and C. AERO adopts a transfer pricing policy based on FULL ACTUAL COST plus a mark-up of 10% on the full actual cost (for example if the unit full actual cost of a product is 10€/unit, the transfer price is 11€/unit). The transfer price is calculated and then charged internally every month. The calculation of the unit actual cost is composed of three items: (1) direct materials; (2) direct labour; and (3) manufacturing overhead (OVH).
In January 2021, Subsidiary A has already produced 800 products using 1,500 machine-hours. At the end of January 2021, on the same day, Subsidiary A receives two additional orders ("4" and "5"), whose requirements are reported below:

	Additional units	Direct material (€/unit)	Direct Labour (€/unit)	Manufacturing overhead (€/unit)	N. of machine-hours needed per unit
Additional order 4 from B	150	15	13	11.25	1.5
Additional order 5 from C	350	15	13	7.50	1

While raw materials are available and workers are paid on an hourly basis without capacity constraints, there is a constraint on the machine capacity. The maximum total machine capacity is 2,000 hours per month.
Considering the transfer pricing policy adopted, which of the following sentence is correct?

a) For the Business Unit A,it is indifferent producing for B or C.
b) The best option for A is to produce 100 unit for B (order 4) and 350 unit for C (order 5)
c) Total revenues for the additional two orders for A are 20.143,75 €.
d) The best option for A is to produce 150 unit for B (order 4) and 275 unit for C (order 5)

Solution

1) Calculate the TPS (per unit) of each order.

TPS B= (15+13+11,25) * 110% = 43.18
TPS C= (15+13+7,50) * 110% = 39.05

2) Calculate the margin given priority to B and then the margin given priority to C. Choose the best option.

Priority to B
Idle machinery capacity = 2000 – 1500 = 500
Machinery usage B = 1.5 * 150 = 225
Idle machinery capacity = 500 – 225 = 275
Hours available for C = 275 → Products → 275
(Extra) Revenues: 150*43.18 + 275*39.05 = 17.215
(Extra) Margin 1 = 17.215 – (150*39.25 + 275*35.50) = 1.565 [calculated considering Direct Material+Direct Labor+OVH]
(Extra) Margin 2 = 17.215 – (150*28 + 275*28) = 5.315 [calculate considering Direct Material+Direct Labor]
(Extra) Margin 3 = 17.215 – (150*15 + 275*15) = 10.840 [calculated considering Direct Material]

Priority to C
Idle machinery capacity = 500
Machinery usage C = 1 * 350 = 350
Idle machinery capacity = 500 – 350 = 150
Hours available for B = 150 → Products → 150/1.5 = 100
(Extra) Revenues: 350*39.05 + 100*43.18 = 17.985
(Extra) Margin 1 = 17.985 – (350*35.50 + 100*39.25) = 1.635 [Direct Material+Direct Labor+OVH]
(Extra) Margin 2 = 17.985 – (350*28 + 100*28) = 5.385 [Direct Material+Direct Labor]
(Extra) Margin 3 = 17.985 – (350*15 + 100*15) = 11.235 [Direct Material]

The best option is to give priority to C, producing all its 350 units and only 100 units for B.