
MGT-482 Principles of Finance

Assignment 6

Prof. Erwan Morellec

Team:

Grégoire Clément - gregoire.clement@epfl.ch

Senri Tatara - senri.tatara@epfl.ch

Timothée-Florian Bronner - timothee-florian.bronner@epfl.ch

February 16, 2019

1 Exercice 1

Working capital for each year can be computed(\$MM):

- 2008: 11
- 2009: 12
- 2010: 18
- 2011: 24
- 2012: 29

Then the unlevered Free Cash Flows without synergies can be calculated(\$MM):

- 2008: 1580
- 2009: 1800
- 2010: 2064
- 2011: 2274
- 2012: 2437

2 Exercice 2

We computed the total tax shield by using the debt repayment schedule:
Each repayment on the interest of the debt is deduced from the Tax.

$$TotalTaxShield = \sum_{i=1}^n \frac{PI \cdot T}{(1+r)^i} = 288.41\$MM \quad (1)$$

PI stands for payment on Interest, r is the monthly interest ($5.5\% / 12$) and T is the tax rate.

To compute the Shielded tax rate we compute the PV of the total tax would have pays without its shield and compare it with the amount saved with the tax shield.

$$TotalTax = \sum_{i=1}^n \frac{EBIT_i}{(1+r)^i} \cdot T = 940\$MM \quad (2)$$

$$\tau_c = \frac{TotalTax - TotalTaxShield}{TotalTax} \cdot T = 27.7\% \quad (3)$$

3 Exercice 3

We computed the asset beta for each company and get the average value:

$$\beta_U = 0.7264 \quad (4)$$

Using this β_U , we can obtain the discount rate :

$$R_U = r_f + \beta_U(r_M - r_f) = 4.61\% \quad (5)$$

4 Exercice 4

We computed the rwacc by using the formula below:

$$rwacc = R_U - \frac{D}{D+E} \tau_c R_D \quad (6)$$

where $R_U = 4.61\%$, $D/E = 40.1\%$, $\tau_c = 27.7\%$, $R_D = 5.5\%$

Hence we got $rwacc = 4.17\%$

We computed the terminal value:

$$TV = \frac{FCF_{12}(1+g)}{rwacc - g} = 197263 \quad (7)$$

5 Exercice 5

The value of operating assets can be calculated

$$\begin{aligned} PV &= \sum_{n=1}^5 \frac{FCF_n}{(1+r)^n} + \frac{TV}{(1+r)^5} \\ &= 166284 \end{aligned} \quad (8)$$

The value of non-operating assets can be computed below:

$$The value of non - operating assets = P/E multiple \times equity in affiliates = 1719 \quad (9)$$

In the end, the total firm value is sum of these values:

$$Total firm value = 166283.7 + 1718.6 = 168002 \quad (10)$$

6 Exercice 6

We take into account the reduction in Backhaul costs and the revenue increase for considering synergies. Then the value of operating assets is: $PV(\text{operating}) = 196404$

In the end, we obtained the total firm value including synergies:

$$Total\ firm\ value\ including\ synergies = 198122 \quad (11)$$

7 Exercice 7