

FIN 521: Problem Set #1

Due on Wednesday, February 7, 2018

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Question 1

Ratios stated on the problem set are calculated as follows.

- Market/Book = Market Capitalization / Book value of equity
- Interest coverage = Some measure of income (operating income, EBIT, EBITDA ...) / Interest payments
- EV/EBITDA = Enterprise value / EBITDA = Market value of equity + Debt - Cash / EBITDA
- Market leverage = Debt / Equity
- Current ratio = Current assets / Current liabilities

Table 1 shows numerical values of ratios calculated by using data from Global Corp's financial statement.

Definition			Numerical Values		
Name of Ratio	Numerator	Denominator	Numerator	Denominator	Ratio
<i>Market/Book</i>	Market Cap.	Book value of equity	36	22.2	1.62
<i>Interest Coverage</i>	Operating income	Interest payments	10.4	7.7	1.35
<i>EV/EBITDA</i>	Enterprise value	EBITDA	131.5	11.6	11.34
<i>Market Leverage</i>	Debt	Equity	147.9	170.1	0.87
<i>Current Ratio</i>	Current assets	Current liabilities	57	34.7	1.64

Table 1: Financial ratios of Global Corp. (Unit: million dollars)

Question 2

- In this case, \$20 million of cash would be credited, and same amount of long-term debt would be debited. Since the same amount of account in balance sheet have been offset, there is no change in Global's book value of equity.
- Inventory would decrease by \$5 million, and there would be also a decrease of book value of equity by \$5 million.
- Since the firm used cash and long-term debt to purchase building, cash amount of \$5 million would be credited, long-term debt amount of \$5 million would be credited, and \$10 million amount of PP&E would be debited. Since the amount of credited and debited balance sheet account is exactly equal, there is no change in Global's book value of equity.

- d. Because there is no possibility that Global would ever receive payment, there would be a decrease of accounts receivable by \$3 million dollars, as would the book value of equity.
- e. Reduction of cost might affect income statement. It might reduce cost of good sold. However, balance sheet of the firm does not change due to this event.
- f. The balance sheet does not change since the announcement of key competitor is not an economic event.

Question 3

Question 4

According to the question, expected cash flow stream of the project is as follows. The payback period of this

<i>Year</i>	<i>year 0</i>	<i>year 1</i>	<i>year 2</i>	<i>year 3</i>	<i>year 4</i>	<i>year 5</i>
<i>Cash flows</i>	-10	5	2	2	2	2

Table 2: Expected Cash Flows

project is 4 years because cumulative cash flow from year 1 to year 4 is 11, and that from year 1 to year 3 is 10. That means it takes four years to retake the initial investment. If the required payback period is two years, the project is not accepted since the payback period is larger than required period. Since the cost of capital is given as 10%, NPV of project is calculated as follows.

$$\begin{aligned}
 NPV &= -10 + \frac{5}{(1+0.1)} + \frac{2}{(1+0.1)^2} + \frac{2}{(1+0.1)^3} + \frac{2}{(1+0.1)^4} + \frac{2}{(1+0.1)^5} \\
 &= 0.309
 \end{aligned}$$

Therefore, the project has a positive NPV, and it means that the project is accepted if we use NPV rule.

Question 5

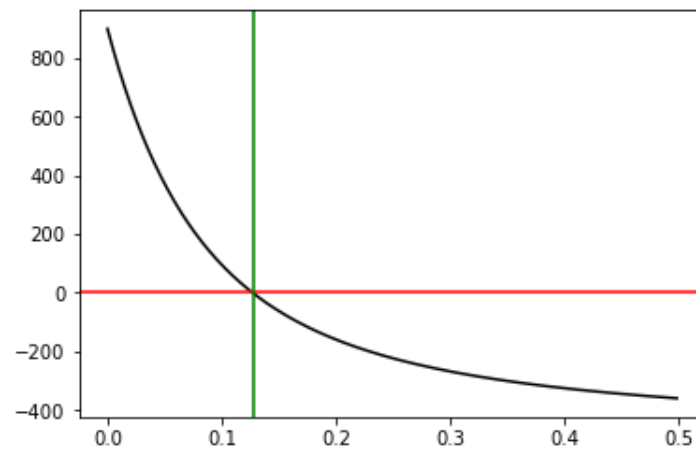


Figure 1: Plot of NPV