# Graded Homework #3: Finance: Financial Analytical Techniques (Counts 5% of Course Grade)

**Due** Jun 24 at 11:59pm **Points** 5 **Questions** 10
**Available** Jun 15 at 6am - Jun 24 at 11:59pm 10 days **Time Limit** None

## Instructions

When completing a Homework Assignment, the student can start and stop work as many times as they wish as long as the assignment is completed by the due date and time. Unlike Exams, Homework Assignments are not timed. Be sure to save and not submit after completing your work. Once you submit the answer to a question it cannot be changed. When you complete the Homework be sure to submit your final answers. Homeworks that are still open (not submitted) will be closed at the due date and time and auto-submitted by the system.

Homework Assignments are open book and students can collaborate but are not allowed to exchange actual homework answers. Collaborate means explaining approaches and concepts but not does not mean sharing spreadsheets or calculations. Also students are not allowed to copy or screen print homework questions. Violations in collaboration or in copying homework questions are subject to honor code disciplinary procedures.

This quiz was locked Jun 24 at 11:59pm.

## Attempt History

| | Attempt | Time | Score |
|---|---|---|---|
| **LATEST** | Attempt 1 | 9,537 minutes | 4 out of 5 |

ⓘ Correct answers are no longer available.

Score for this quiz: **4** out of 5
Submitted Jun 24 at 11:59pm
This attempt took 9,537 minutes.

| **Question 1** | **1 / 1 pts** |
|---|---|

# Finance (Part 1) Homework Assignment Questions and Profile Information

## QUESTION 1 -- Skaggs KS Manufacturing

Following is the five-year forecast for Skaggs KS Manufacturing: (all amounts in $millions)

| | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|
| EBIT | $4500 | $4600 | $4800 | $6010 | $8800 |
| Capital Expenditures (Capex) | $500 | $800 | $700 | $600 | $500 |
| Changes in Working Capital | $40 | $100 | $140 | $100 | $10 |
| Depreciation | $50 | $80 | $100 | $120 | $150 |

Assuming a tax rate (t) of 21%, calculate Skaggs KS free cash flow for each year. Interest expenses are zero.

Assume a 10% discount rate.

NVP (2020 -2024) = (insert answer in Question 1 Below)

ASSUME THAT 2020 is Year 1, NOT YEAR 0. ITS A 5 YEAR FORECAST.

### Calculate the Total Net Present Value of the Five Year Cash Forecast for Skaggs KS Manufacturing. Choose best answer from the list below. All answers are in $millions.

HINT: To correctly answer this problem it's important that you use the free cash flow equation that approximates a firm's annual cash flow. The equation is: FCF = EBIT (1-t) - capital expenditures (capex) + depreciation +/- change in working capital. EBIT is earnings before interest and taxes. You apply this formula to each year in the problem then discount the results for each year back to the present to get the NPV. Note that you subtract working capital if

working capital increases during the year and you add working capital if working capital decreases during the year. This is the same logic that used in applying the indirect method to determining a cash flow statement. So lets say the change in working capital is (30). This indicates that working capital decreased during the year so you add it in the free cash flow formula. If working capital increased by 30 then you would subtract it.

Depending upon the number of significant digits you round to your answer may be **slightly** different from any of the choices below. **The correct answer below was determined using MS Excel.**

**To check to make sure you understand the formula the answer to the 2020 free cash flow (FCF) is $3065.**

- (•) $14,345
- ( ) $15,193
- ( ) $11,278
- ( ) $19,367
- ( ) $14,942

## Question 2

**0.25 / 0.25 pts**

Consider the new product launch project that Maxwell-Cone Enterprises is considering. The CA-200 project is a proposed EV Go-Kart that requires an initial investment of $1,500,000 in production infrastructure in 2019 (year 0) for production to begin in 2020. Free Cash Flows for the project for years 1 - 8 are shown below. The introduction of a new product at year 9 will terminate further cash flows from this project. Assume a cost of capital of 15% where necessary to solve the following problems.

| Year | CA-200 |
|---|---|
| 0 | -$1,500,000 |
| 1 | $320,000 |
| 2 | $350,000 |

| | |
|---|---|
| 3 | $385,000 |
| 4 | $425,000 |
| 5 | $470,000 |
| 6 | $400,000 |
| 7 | $201,000 |
| 8 | $75,000 |

What is the **undiscounted** Payback Period for project CA-200 Go-Kart Project

- 2.78 years
- 4.33 years
- 4.63 years
- 3.58 years
- (•) 4.04 years

Incorrect

## Question 3

**0 / 0.25 pts**

Continuing with the Maxwell-Cone EV Go-Kart project, what is the **discounted** payback period for this project?

- 6.72
- 4.06
- The Discounted Payback Period is Longer Than 8 Years Timeframe
- (•) 5.72
- 2.78

## Question 4

0.5 / 0.5 pts

Continuing with the  Maxwell-Cone CA-200 Go-Kart Project project, what is the NPV of the project?

- $1,126,000
- $24,518
- (selected) $45,735
- $17,069
- $39,770

## Question 5

0.5 / 0.5 pts

Continuing with the Maxwell-Cone Ca-200 Go Kart Project, what is the Internal Rate of Return (IRR) for the project?

- 15.00%
- 12.34%
- (selected) 15.98%
- 16.75%
- 14.19%

## Question 6

1 / 1 pts

Consider the following financial data.

US 10-Year T-Bond Yield = 2.45%

Market Risk Premium = 6.25%

Tax Rate = 21%

Also the following data for Ford Motor Company:

Stock Price = $10.38

Market Cap = $41.412B

Beta = .91

Moodys = A1 (115 basis points)

Total Debt = $157.16B million

Number of Shares Outstanding = 3.92B million

Diluted EPS = $.92

Return on Assets = 1.02%

Total Debt/Equity (Book Value) = 429.76

Book Value/share = $9.12

Revenues = $158.72B

Calculate the Cost of Capital for Ford Motor Company. Choose the best answer from the list below.

- ○ 10.57%
- ○ 7.19%
- ◉ 3.95%
- ○ 7.88%
- ○ 3.60%

## Question 7

0.25 / 0.25 pts

Using the Ford Motor Company financial profile information (refer to question above) calculate the MVA for Ford

- ○ $111.61 B
- ○ $75.02.B
- ◉ $4.94B
- ○ $87.94B
- ○ $12.68B

Incorrect

## Question 8

0 / 0.5 pts

Quirky Technologies has four independent projects under consideration each with a required rate of return of 16%. The total projects budget is **$12,000 (all amounts in $000)**. A table showing the investments and projected free cash flows follows:

| Project/Year | Landslide | Showdown | Bedrock | 9Box | Squeeze |
|---|---|---|---|---|---|
| 0 (investment) | $4,200 | $6,500 | $3,500 | $10,500 | $1,500 |
| 1 | $1,500 | $2000 | $500 | $3,200 | $650 |
| 2 | $3,000 | $3000 | $1000 | $5,200 | $650 |
| 3 | $2,500 | $4000 | $1,800 | $6,800 | $650 |
| 4 | $2,000 | $2,500 | $3,500 | $5,000 | $650 |
| 5 | ($1,500) | $2,000 | $3,000 | $3,500 | ($300) |

No additional cash flows are expected from any of the five projects after year 5. NOTE that your total investment cannot exceed **$12,000 and management policy is to select investments based on highest NPV.**

**MANAGEMENT DOES NOT HAVE TO SPEND THE ENTIRE BUDGET but does want to maximize the NPV of their investment budget.**

**Determine which project or combination of projects yield the highest NPV. Choose your answer from the options below. The correct answer was determined using an Excel spreadsheet.**

- ○ Invest in 9Box Only
- ○ Invest in Showdown and Squeeze
- ○ Invest in 9BOX and Squeeze
- ○ Invest in Landslide and Showdown
- ◉ Invest in Showdown, Bedrock and Squeeze

Incorrect

## Question 9

**0.5 / 0.5 pts**

Continuing with Quirky Technologies. What is the combined NPV of the project or projects you decided to invest in (see your answer to the question above)?

- ○ $5,083
- ◉ $4,714
- ○ $6,118
- ○ $6,297
- ○ $3,664
- ○ $4,907

Credit Given for Showdown, Bedrock, and Squeeze

Incorrect

## Question 10

0 / 0.25 pts

Continuing with Quirky Technologies what is the IRR when combining Projects Landslide and Showdown?

- 30.37%
- 27.62%
- 16.00%
- 32.46%
- 31.09%
- 62.83%

Quiz Score: **4** out of 5