

Academic Year 2019 Assessment

What Learning Outcome(s) to be assessed:

Using financial statements, calculate key indicators of venture performance and use them to make effective managerial decisions

Assessment Method Category: *Individual Quizzes and Final Exam*

Assessment Method:

Provide a detailed description of the assessment plan

Students were tested with individual five quizzes (including the initial assessment quiz) and final exams containing both quantitative and qualitative questions. Eight topics were chosen to represent a fair assessment of major concepts.

Target:

75 percent of the estimated evaluation scores are above the expected value of the score distribution.

Courses where method will be assessed (if applicable):

MSEI 504-2 - Entrepreneurial Finance and Accounting

Evaluator:

Gennadi Mikhailik

Completion Date:

Estimate the date this assessment will be complete and the results will be available for review.

December 24, 2019

Additional Detail (if applicable):

All 20 students taking the class are used for evaluation.

Related Documents:

Provide a list of supporting documents to be included with this assessment plan (e.g., sample test, grading rubrics).

Supporting documents: summary statistics, assessment rubrics, quizzes 1 through 4, and final exam

Summary Statistics

The table below contains the distribution of academic performance by four qualitative classes.

Table 1: Distribution by Qualitative Ranges

Course Grade	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Average	8	40.00	8	40.00
Good	4	20.00	12	60.00
Excellent	8	40.00	20	100.00

The table below contains the distribution of academic performance above and below the **expected target of 88**.

Table 2: Distribution of Performance Above and Below Expected

Course Grade	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Below Expected	5	25.00	5	25.00
Above Expected	15	75.00	20	100.00

Since the group of students was self-selected based previous accounting courses, we performed the initial assessment Quiz 0, which was not included in the final grade. The table below contains the summary of the initial assessment Quiz 0.

Table 3: Distribution by Qualitative Ranges

Course Grade	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Poor	18	90.00	18	90.00
Average	2	10.00	20	100.00

Based on the comparison of Tables 1 and 3, we observed a material improvement in the subjected matter knowledge after the completion of the course. The average score of the initial assessment was 29 compared with the average final score of 88 represents an improvement of 59 points.

Assessment Rubrics and Results

Rubric	Excellent	Good	Average	Poor
1. Students can do pre and post money valuation and calculate ownership percentage	8	9	3	0
Criteria: Final & Quiz 4	40.00%	45.00%	15.00%	0.00%
2. Students understand forms of business organization.	4	15	4	0
Criteria: Final & Quiz 2	20.00%	75.00%	5.00%	0.00%
3. Students understand income statement and balance sheet and can use them to calculate net cash burn rate and number of months before more external financing is needed	10	9	1	0
Criteria: Final & Quiz 1	50.00%	45.00%	5.00%	0.00%
4. Students understand and can calculate key financial ratios, profit margins and survival breakeven revenue	12	8	0	0
Criteria: Final, Quiz 1 and Quiz 2	60.00%	40.00%	0.00%	0.00%
5. Students can calculate the after-tax weighted average cost of capital, net operating profit after tax, and economic value added and determine whether the venture builds or destroys value	3	13	0	0
Criteria: Final & Quiz 3	15.00%	65.00%	20.00%	0.00%
6. Students can forecast sales and create projected financial statements	8	9	3	0
Criteria: Final and Quiz 4	40.00%	45.00%	15.00%	0.00%
7. Students can calculate working capital and valuation cash flows	11	8	1	0
Criteria: Final, Quiz 1 & Quiz 4	55.00%	40.00%	5.00%	0.00%
8. Students can calculate the present value of free cash flows to equity, capital gains, dividend yield, and return on investment	10	9	1	0
Criteria: Final, Quiz 1, Quiz 3, Quiz 4	50.00%	45.00%	5.00%	0.00%

**Questions used in Assessment:
MSEI504 Quiz #1 2019 (100 points)**

1. Use the financial statements for ABC Company to write down the formulas and plug in numbers to calculate the following:
 - 1.1 Cash burn **(10 points)**
 - 1.2 Cash build **(10 points)**
 - 1.3 Net cash burn **(10 points)**
 - 1.4 Current ratio for 2012. **(10 points)**
 - 1.5 Quick ratio for 2012. **(10 points)**
 - 1.6 Net profit margin for 2012. **(10 points)**
 - 1.7 Gross profit margin for 2012. **(10 points)**
 - 1.8 Operating profit margin for 2012. **(10 points)**

ABC financial statements for years ended 2012 and 2013						
	2012	2013		2012	2013	
			Assets			
Net sales	438,000	575,000	Cash	10,000	5,000	
-Cost of goods sold	-285,000	-380,000	Receivables	75,000	105,000	
Gross profit	153,000	195,000	Inventories	95,000	140,000	
-Administrative expenses	-45,000	-65,000	Total current assets	180,000	250,000	
-Marketing expenses	-32,000	-39,000	Gross fixed assets	205,000	255,000	
-Research and development	-20,000	-27,000	Less: accumulated depreciation	-42,000	-59,000	
-Depreciation	-14,000	-17,000	Net fixed assets	163,000	196,000	
Earnings before interest and tax	42,000	47,000	Total assets	343,000	446,000	
-Interest expense	-12,000	-20,000	Liabilities and Equity			
Income before taxes	30,000	27,000	Payables	57,000	84,000	
-Income taxes	-9,000	-8,000	Short-term debt	44,000	110,000	
Net income	21,000	19,000	Accruals	9,000	10,000	
			Total current liabilities	110,000	204,000	
			Long-term debt	90,000	80,000	
			Equity	143,000	162,000	
			Total liabilities and equity	343,000	446,000	

2. Suppose your venture is 5 months in business. What is your target rate of return? **(5 points)**
3. Suppose your venture is less than 2 years in business. What is your target rate of return? **(5 points)**
4. Provide an estimate of the target return for the rapid growth stage? Explain your estimate. **(5 points)**
5. Suppose your business does not have debt, the asset intensity is 2 and ROE is 0.1. What is the profit margin? **(5 points)**

MSEI504-02 FALL 2019 Quiz 2 (100 units)

1. Is a venture at risk of bankruptcy if its Altman's score is greater than 3? Explain why. **(5 points)**
2. Suppose that you invested \$10,000 in a corporation that went bankrupt. Are you going to lose your house now? Explain why. **(3 points)** How will it affect your FICO? Briefly explain. **(2 points)**
3. If a company with limited liability is sued, then are the claimants suing the company or investors? **(5 points)**
4. Is a shareholder in a limited company is personally liable for any of the debts of the company, other than for the amount already invested in the company? **(5 points)**
5. Was the bankruptcy code set up to punish people? Please explain. **(5 points)**
6. What is the automatic stay? **(5 points)**
7. What types of bankruptcy filings are available to small businesses under the U.S. Federal Bankruptcy Code? **(5 points)**
8. What forms of business organization are eligible to file bankruptcy under Chapter 7? **(5 points)**
9. Can corporations file bankruptcy under Chapter 13? Please explain. **(5 points)**
10. What is the difference between Chapter 7 and Chapter 13 bankruptcy? Please explain. **(5 points)**
11. Which forms of business organization provide limited liability? **(5 points)**
12. Which forms of business organization are subject to double taxation? **(5 points)**
13. Which forms of business organization have unlimited liability? **(5 points)**
14. Which forms of business organization have limited liability and do not have double taxation? **(5 points)**
15. What is corporate taxation? Briefly explain. **(5 points)**
16. What are the two alternatives to bankruptcy? **(5 points)**
17. For how long does the bankruptcy remain on credit report? **(5 points)**
18. Does an S Corporation pay a corporate tax? **(5 points)**
19. There is no perfect time to declare bankruptcy, but there is a good rule of thumb. Please state it. **(5 points)**
20. Based on Altman's Z score, when is a business considered at risk of bankruptcy? **(5 points)**

MSEI504-02 FALL 2019 Quiz 3 (100 units)

1. If the sustainable sales growth rate is 20%, net profit margin 10%, ROA 20%, and leverage 2. What is the retention ratio? **(10 points)**
2. Assuming the financial policy factor is 2, what level of operating performance is needed to achieve 40% sustainable growth? **(10 points)**
3. If the sustainable growth is 20%, leverage 2 and no dividends are paid. What is the operating performance rate? **(10 points)**
4. What is the formula for a sustainable sales growth rate? **(10 points)**
5. What is meant by financial capital needed (FCN)? Briefly explain. **(10 points)**
6. What is the formula for financial capital needed (FCN)? **(10 points)**
7. What is the formula for spontaneously generated funds? **(10 points)**
8. What is the formula for increase in retained earnings? **(10 points)**
9. What is the definition of operating performance? **(10 points)**
10. What is the definition of financial policy? **(10 points)**

MSEI504 Quiz #4 (100 points)

Jim is the owner of a microbrewery which is currently in the survival stage. Originally, he invested \$200,000 in his microbrewery. Now, he got an offer to invest \$500,000. Here is Jim's best guess for cash flows is: \$0 this year, \$0 next year, \$0 the 3d year, \$1,000,000 the 4th year, and \$2,000,000 the 5th year. In the 6th year, the venture would become mature and generate \$3,000,000, and this would be expected to grow at roughly 5% per year after Year 6.

1. Estimate the pre-money value of Jim's venture, write down the formula and plug in numbers. **(16 points)**
2. Estimate the post-money value of Jim's venture, write down the formula and plug in numbers. **(16 points)**
3. Estimate the terminal value of Jim's venture after year 6, write down the formula and plug in numbers. **(16 points)**
4. Estimate the reversion value of Jim's venture, write down the formula and plug in numbers. **(16 points)**
5. Suppose Jim initially invested \$100,000. How did the post-money value of Jim's venture change? Briefly explain. **(16 points)**
6. What is the amount of the venture that Jim should be willing to sell for \$500,000 of new financing? Write down the appropriate formula and plug in the numbers. **(20 points)**

MSEI504-02 FINAL EXAM (100 Points)

1. Chrystal Wong Inc. is a startup. Originally, she invested \$50,000 in the venture. Now, Chrystal got an offer to invest \$500,000. According to the business plan, the venture would have left over after all operating expenses and reinvestment in the first five years: \$50,000 this year, \$100,000 next year, \$200,000 the third year, \$2,000,000 the fourth year, and 2,500,000 the fifth year. In the sixth year, Chrystal believes that the mature venture would have a cash flow of approximately \$2,700,000 and this would be expected to grow at 5 percent per year after year 6.
 - a. Estimate the pre-money value of Chrystal’s venture, write down the formula and plug in numbers. **(10 points)**
 - b. Estimate the post-money value of Chrystal’s venture, write down the formula and plug in numbers. **(5 points)**
 - c. Estimate the reversal value of Chrystal’s venture, write down the formula and plug in numbers. **(5 points)**
 - d. Suppose Chrystal initially invested \$150,000. How would the pre-money value of Chrystal’s venture change? **(5 points)**
 - e. What is the projected going concern of Chrystal Wong five years from now? **(5 points)**
 - f. If Chrystal Wong is going to maintain the equity multiplier of 1 at all times, what would be the enterprise value? **(5 points)**
 - g. What is the amount of the venture Chrystal should be willing to sell for \$500,000 of new financing? Write down the appropriate formula and plug in the numbers. **(5 points)**
 - h. If Chrystal Wong’s investors believe that the venture has a 10 percent chance of being a black hole, an 80 percent chance of becoming the living dead, and a 10 percent chance of achieving venture utopia. Below are valuation cash flows for three scenarios for Chrystal Wong. What is the mean-approach value of the enterprise? **(10 points)**

Chrystal Wong							
Scenario	Probability	y1	y2	y3	y4	y5	y6
Black hole	0.1	0	0	0	0	0	0
Living dead	0.8	0	0	0	500000	1000000	1100000
Utopia	0.1	50000	100000	200000	2000000	2500000	2700000

2. Lynda Chen founded a new venture last year with \$10,000 in equity capital for which she received 2,000,000 shares of common stock. The venture is now moving into its startup stage and needs an additional \$1,000,000 to carry out the business plan. If Lynda had \$1,000,000 to invest, she could retain 100 percent ownership of the venture. Because Lynda does not have additional equity funds to invest, she is negotiating with a venture investor who is willing to invest \$1,000,000 for an ownership position in the firm in the form of newly issued shares of common stock. The investor and the founder agree that the horizon (time to exit) for the investment should be five years. The

- investor expects a 50 percent compound annual rate of return for the entire five years. We need to value the venture based on a five-year exit and determine how many shares to issue to the investor for the \$1,000,000. Looking ahead five years, we can say that the successful venture is expected to produce \$1,000,000 per year in income at that time. We also know that a similar venture recently sold shares to the public for \$20,000,000, and that its last twelve months of income was \$2,000,000.
- a. Estimate Lynda Chen's venture exit value five years from now. **(10 points)**
 - b. What equity ownership percentage must be given to the \$1,000,000 investor? **(10 points)**
 - c. Calculate the number of shares to be issued to the new investor. **(10 points)**
 - d. What will be the total number of shares outstanding after the investment? **(10 points)**
3. Cindy Liu Products Company, which is a closely held firm with no public market for its common stock. Cindy Liu's most recent year's EBITDA was \$1,500,000. The firm has only a small amount of cash assets and outstanding interest-bearing debt of \$2,500,000. A publicly traded comparable firm Agave Products has a market cap of \$10,000,000 based on a stock price of \$20 per share and 500,000 issued shares of common stock. Agave has \$4,000,000 in interest-bearing debt and carries only a small amount of cash assets. Estimate the enterprise value of Cindy Liu Products. **(10 points)**