Week 8 Assignment Worksheet

Instructions: This worksheet contains 3 parts, and you must complete all of them. Use the activity responses from Week 5, 6, 7 and 8 activities to complete the worksheet.

In order to complete the assignment, you must follow these steps:

1. Complete this worksheet with the responses from your activity documents.
2. You'll find that each question has its own submission block where you need to put in your answers.
3. You must complete all the blocks available under a question. Leaving a block empty will be considered as that question not being answered (even if you answer it somewhere else).
4. Make sure you place the correct answer under the right question. Misplaced answers will not be marked.
5. Save, and submit this worksheet on Savanna.

Part A: Financial Management Activity

For technical responses in this part, show all your working. For theoretical responses, keep your answers to 250 words or less.

Question 1

What is the agency problem in finance, and how does it arise in the relationship between shareholders and managers of a corporation? Provide one example to illustrate the potential conflicts of interest between these parties.

Answer:
The agency problem in finance refers to conflicts of interest that arise when one party (the agent) is expected to act on behalf of another party (the principal), but their interests are not perfectly aligned. In the context of a corporation, the shareholders are the principals, and managers are the agents. Shareholders want managers to maximize the company's long-term value, but managers may pursue personal goals such as increasing their compensation, job security, or prestige, which may not always benefit shareholders.
This problem arises due to:
Information asymmetry: Managers usually have more information than shareholders.

Self-interest: Managers may act in their own interest unless there are controls in place.

Example: A manager may invest in a risky project that could bring short-term gains and increase their

Question 2

Tech Solutions Inc. (TSI) is considering going public and listing its shares on a stock exchange. What could be the potential benefits of this decision?

Answer:
Going public by listing on a stock exchange offers several potential benefits for Tech Solutions Inc. (TSI):
Access to Capital: TSI can raise significant funds by selling shares to the public. This capital can be used for expansion, research and development, or paying off existing debt.

Improved Company Profile: Listing increases TSI’s visibility and credibility, which can attract more business opportunities, strategic partnerships, and talented employees.

Liquidity for Shareholders: Existing shareholders gain the ability to sell their shares more easily, offering flexibility and a way to realize returns on their investment.

Valuation and Market Feedback: Being publicly traded allows TSI to get real-time market valuation, which can help in strategic planning and attracting more investors.

Question 3

TSI is facing several financial decisions regarding asset acquisition, financing, and debt management. Provide reasons why TSI may decide to:

a. Lease rather than buy an asset for long-term use.

TSI may choose to lease rather than buy an asset for the following reasons:
Preserve Cash Flow: Leasing requires lower upfront payments, allowing TSI to conserve cash for other operations or investments.

Flexibility: Leases often come with flexible terms and can be renewed or upgraded, making it easier to adapt to technological changes or business needs.

Tax Benefits: Lease payments are usually tax-deductible as an operating expense, potentially reducing taxable income.

b. Use retained earnings to finance growth rather than issuing new shares.

TSI may prefer using retained earnings for growth due to the following reasons:
Avoid Ownership Dilution: Issuing new shares would dilute existing shareholders' ownership and control, which retained earnings avoid.

Lower Cost of Capital: Retained earnings are an internal source of finance and do not involve flotation costs or interest, making them cheaper than issuing equity.

Signal of Financial Strength: Funding growth from retained profits signals strong internal performance and confidence in future cash flows, which can positively affect investor perception.

c. Repay long-term borrowings earlier than the specified repayment date.

TSI may choose early debt repayment for these reasons:
Interest Savings: By repaying early, TSI can reduce total interest costs over the loan term, improving overall profitability.

Strengthen Credit Rating: Early repayment can improve the company’s creditworthiness and reduce the cost of future borrowing.

Reduce Financial Risk: Lower debt levels reduce financial leverage and risk, especially during uncertain economic conditions.

Question 4

A project costing $25,000 is expected to yield the following cash flows over 4 years:

- Year 1: $14,000
- Year 2: $10,000
- Year 3: $8,000
- Year 4: $6,000

i. Calculate the NPV if the company's cost of capital is 8%

NPV at 8% cost of capital
NPV = (14,000 / (1.08)^1) + (10,000 / (1.08)^2) + (8,000 / (1.08)^3) + (6,000 / (1.08)^4) - 25,000
= 12,963.0 + 8,573.4 + 6,350.2 + 4,409.7 - 25,000
NPV $7,296.30

ii. Calculate the NPV if the company's cost of capital is 16%

NPV at 16% cost of capital
NPV = (14,000 / (1.16)^1) + (10,000 / (1.16)^2) + (8,000 / (1.16)^3) + (6,000 / (1.16)^4) - 25,000
= 12,068.97 + 7,435.6 + 5,123.9 + 3,313.3 - 25,000
NPV $2,941.80
Final Answers:
? NPV at 8% = $7,296.30
? NPV at 16% = $2,941.80

Question 5

Calculate the IRR for a project where the NPV is $105,600 at a 7% rate of return and ($46,000) at a 13% rate of return.

IRR Calculation Using Interpolation
We use the formula:
IRR = r + [(NPV / (NPV - NPV)) × (r - r)]

Given:
r = 7%, NPV = $105,600
r = 13%, NPV = -$46,000

IRR = 7% + [105,600 / (105,600 - (-46,000))] × (13% - 7%)
= 7% + (105,600 / 151,600) × 6%
= 7% + 0.6968 × 6%
= 7% + 4.18%
IRR = 11.18%

Question 6

A project costing $44,000 is expected to generate the following cash flows over 4 years at a cost of capital of 8%:

- Year 1: $24,000
- Year 2: $14,000
- Year 3: $12,000
- Year 4: $10,000

Calculate the IRR for this project.

Solution:
We solve the NPV equation for IRR:
NPV = -44,000 + 24,000/(1+r)^1 + 14,000/(1+r)^2 + 12,000/(1+r)^3 + 10,000/(1+r)^4 = 0

Trying rates:
- At 8%: NPV = $7,107.22 (positive)
- At 15%: NPV = $1,055.85 (positive)
- At 17%: NPV = -$513.00 (negative)

Using interpolation:
IRR 15% + (1,055.85 / (1,055.85 + 513)) * (2%) 16.35%

Answer: IRR 16.35%

Question 7

XYZ has estimated the following discounted present values for a project lasting 5 years. What is the payback period?

- Year 0: ($80,000)
- Year 1: $32,460
- Year 2: $26,500
- Year 3: $20,420
- Year 4: $16,470
- Year 5: $14,300

Solution:
Cumulative discounted cash flows:
Year 0: -80,000
Year 1: -47,540
Year 2: -21,040
Year 3: -620
Year 4: 15,850

Payback happens between Year 3 and 4:
Remaining: $620
Year 4 inflow: $16,470
Fraction = 620 / 16,470 0.038

Answer: Payback Period 3.04 years

Question 8

Company XYZ is considering two projects: Project A (initial investment $50,000) and Project B (initial investment $70,000). The cash flows for the projects over 5 years are as follows:

Project A:

- Year 1: $10,000
- Year 2: $15,000
- Year 3: $20,000
- Year 4: $25,000
- Year 5: $30,000

Project B:

- Year 1: $20,000
- Year 2: $25,000
- Year 3: $30,000
- Year 4: $35,000
- Year 5: $40,000

Assuming a discount rate of 10%, calculate the PI for each project and determine which project should be chosen based on the PI criterion.

PV Factors at 10%:
Year 1: 0.9091, Year 2: 0.8264, Year 3: 0.7513, Year 4: 0.6830, Year 5: 0.6209

Project A:
PV = 9,091 + 12,396 + 15,026 + 17,075 + 18,627 = $72,215
PI = 72,215 / 50,000 = 1.44

Project B:
PV = 18,182 + 20,660 + 22,539 + 23,905 + 24,836 = $110,122
PI = 110,122 / 70,000 = 1.57

Answer: Choose Project B (PI = 1.57 > 1.44)

Question 9

ABC Corporation is considering investing in a new manufacturing machine that costs $100,000, with a salvage value of $20,000 at the end of its 5-year useful life. The expected cash flows are:

- Year 1: $30,000
- Year 2: $35,000
- Year 3: $40,000
- Year 4: $45,000
- Year 5: $50,000

Calculate the ARR for the investment in the machine.

To calculate the Accounting Rate of Return (ARR):

Average Annual Profit = (30,000 + 35,000 + 40,000 + 45,000 + 50,000) / 5 = $40,000
Average Investment = (Initial Investment + Salvage Value) / 2 = (100,000 + 20,000) / 2 = $60,000

ARR = (Average Annual Profit / Average Investment) × 100
ARR = (40,000 / 60,000) × 100 = 66.67%

Final Answer: ARR = 66.67%

Part B: Zulu Corporation Case Study

Carefully review the Zulu Corporation Case Study provided in the Week 6 activity, and perform the required calculations to answer the following questions.

Section 1: Case Questions

1. Cost of Debt Calculation

   a. Calculate the cost of debt for Zulu Corporation's outstanding bonds.

a. The cost of debt (Kd) is calculated using the yield to maturity (YTM) approach.
Given: Face Value = $1,000 (standard bond face value), Coupon Rate = 6%, Market Price = $980, Time to Maturity = 10 years.
Annual Coupon Payment = 6% of $1,000 = $60
Using a financial calculator or YTM formula, approximate cost of debt 6.22%

   b. Determine the after-tax cost of debt for Zulu Corporation given the provided information.

b. After-tax Cost of Debt = Kd × (1 - Tax Rate) = 6.22% × (1 - 0.30) = 4.35%

2. Cost of Equity Determination – Calculate the cost of equity for Zulu Corporation based on the provided dividend information and expected growth rate.

2. Cost of Equity Determination
Cost of Equity (Ke) is calculated using the Gordon Growth Model:
Ke = (D1 / P0) + g, where D1 = expected dividend next year = $2 × (1 + 0.05) = $2.10,
P0 = $50, g = 5%
Ke = (2.10 / 50) + 0.05 = 0.042 + 0.05 = 9.2%

3. Cost of Preferred Stock Analysis

a. Compute the cost of preferred stock for Zulu Corporation.

a. Cost of Preferred Stock (Kps) = Dividend / Price = $4 / $60 = 6.67%

b. Compare and contrast the cost of preferred stock with the cost of debt and equity for Zulu Corporation.

b. Comparison: Preferred stock is more expensive than debt (6.67% vs 4.35%) but cheaper than equity (6.67% vs 9.2%) for Zulu Corporation.

4. Weighted Average Cost of Capital (WACC) Computation

a. Define WACC and discuss its significance in investment decision-making.

a. WACC is the average rate of return a company is expected to pay to finance its assets.
It is significant because it is used as a discount rate for evaluating investment projects.

b. Calculate the Weighted Average Cost of Capital (WACC) for Zulu Corporation based on its target capital structure and the costs of debt, equity, and preferred stock.

b. WACC = (E/V × Ke) + (D/V × Kd × (1 - Tc)) + (P/V × Kps)
E = 50%, D = 40%, P = 10%
Ke = 9.2%, Kd = 6.22%, After-tax Kd = 4.35%, Kps = 6.67%
WACC = (0.5 × 0.092) + (0.4 × 0.0435) + (0.1 × 0.0667)
WACC = 0.046 + 0.0174 + 0.00667 = 7.71%

5. Working Capital Management Assessment

a. Define working capital and its significance in financial management.

a. Working capital = Current Assets - Current Liabilities. It is significant for liquidity management and day-to-day operations.

b. Identify and classify the various components of working capital.

b. Components: Current Assets (cash, accounts receivable, inventory), Current Liabilities (accounts payable, short-term debt).

Section 2: Working Capital Calculation Questions

Following are an additional set of questions that are part of this activity. Complete them as well, showing all your work. These are not connected to the Zulu Case, and should be answered based on the information provided in the question only.

1. ABC Company has current assets of $500,000 and current liabilities of $300,000. Calculate the working capital of ABC Company.

1. Working Capital = Current Assets - Current Liabilities = $500,000 - $300,000 = $200,000

2. XYZ Corporation had $800,000 in cost of goods sold (COGS) and an average inventory of $200,000 during the year. Calculate the inventory turnover ratio for XYZ Corporation.

2. Inventory Turnover Ratio = COGS / Average Inventory = $800,000 / $200,000 = 4 times

3. DEF Inc. has net credit sales of $1,200,000 for the year and an average accounts receivable balance of $300,000. Calculate the accounts receivable days (average collection period) for DEF Inc.

3. Accounts Receivable Days = (Average Receivables / Net Credit Sales) × 365 = (300,000 / 1,200,000) × 365 = 91.25 days

4. GHI Manufacturing Company has average days inventory outstanding (DIO) of 40 days, average days sales outstanding (DSO) of 30 days, and average days payable outstanding (DPO) of 20 days. Calculate the cash conversion cycle (CCC) for GHI Manufacturing Company.

4. CCC = DIO + DSO - DPO = 40 + 30 - 20 = 50 days

5. LMN Enterprises has current assets of $400,000, including inventory valued at $150,000, and current liabilities of $200,000. Calculate the quick ratio (acid-test ratio) for LMN Enterprises.

5. Quick Ratio = (Current Assets - Inventory) / Current Liabilities = ($400,000 - $150,000) / $200,000 = 1.25

Part C: Amazon Case Study

Review the Financial Reports of Amazon Ltd. and use appropriate data to perform the required analyses. Show your calculations.

Section 1: Amazon's Liquidity

1. Calculate Amazon's liquidity ratios (covered in this week's content) using the information available on Amazon's Financial Reports. Do so for the years 2019 and 2020.

1. Liquidity Ratios (2019 and 2020)
Current Ratio:
- 2019: 1.10 (Current Assets: $96,334M / Current Liabilities: $87,812M)
- 2020: 1.06 (Current Assets: $132,733M / Current Liabilities: $125,481M)

Quick Ratio:
- 2019: 0.86 [(Current Assets - Inventory): ($96,334M - $20,497M) / $87,812M]
- 2020: 0.87 [(Current Assets - Inventory): ($132,733M - $23,795M) / $125,481M]

2. Based on your calculations, what can you say about Amazon's liquidity, and how it's changing over the years? Provide reasoning for your conclusion.

Amazon maintained a healthy liquidity position over the two years. The current ratio slightly declined, while the quick ratio improved, indicating better liquidity from non-inventory assets. Despite the small changes, Amazon has enough current assets to meet short-term obligations.

Section 2: Amazon's Efficiency

1. Calculate Amazon's efficiency ratios (covered in this week's content) using the information available on Amazon's Financial Reports, assuming all sales were on credit. Do so for the years 2019 and 2020.

Note: At the end of **2018** inventory was $17,174 million, accounts receivable were $16,677 million, shareholders' equity was $43,549 million, and total assets were $162,648 million.

Inventory Turnover:
- 2019: 14.25 (Revenue: $280,522M / Avg Inventory: $19,471M)
- 2020: 17.38 (Revenue: $386,064M / Avg Inventory: $22,146M)

Accounts Receivable Turnover:
- 2019: 15.17 (Revenue: $280,522M / Avg AR: $18,747M)
- 2020: 17.58 (Revenue: $386,064M / Avg AR: $22,679M)

2. Based on your calculations, what can you say about Amazon's efficiency as a business, and how it's changing over the years? Provide reasoning for your conclusion.

Amazon's efficiency improved significantly from 2019 to 2020. Both inventory and accounts receivable turnover ratios increased, suggesting better management of stock and faster collection of receivables.

Section 3: Amazon's Profitability

1. Calculate Amazon's profitability ratios (covered in this week's content) using the information available on Amazon's Financial Reports. Do so for the years 2019 and 2020.

Net Profit Margin:
- 2019: 4.13% ($11,588M / $280,522M)
- 2020: 5.52% ($21,331M / $386,064M)

Return on Assets (ROA):
- 2019: 5.15% ($11,588M / $225,248M)
- 2020: 6.64% ($21,331M / $321,195M)

Return on Equity (ROE):
- 2019: 18.46% ($11,588M / $62,797M)
- 2020: 22.84% ($21,331M / $93,404M)

2. Based on your calculations, what can you say about Amazon's profitability, and how it's changing over the years? Are the investors getting a good return on their money? Provide reasoning for your conclusion.

Amazon's profitability improved across all major indicators in 2020. The higher net margin, ROA, and ROE show that the company generated more income relative to revenue, assets, and equity, reflecting better performance and higher returns for investors.

Section 4: Amazon's Capital Structure

1. Calculate Amazon's structure ratios (covered in this week's content) using the information available on Amazon's Financial Reports. Do so for the years 2019 and 2020.

1. Structure Ratios (2019 and 2020)
Debt to Equity Ratio:
- 2019: 0.37 ($23,414M / $62,797M)
- 2020: 0.34 ($31,816M / $93,404M)

Debt to Assets Ratio:
- 2019: 0.10 ($23,414M / $225,248M)
- 2020: 0.10 ($31,816M / $321,195M)

2. Based on your calculations, what can you say about Amazon's capital structure, and how it's changing over the years? Provide reasoning for your conclusion.

Amazon maintained a stable capital structure with a modest debt load. The company relies more on equity financing, as shown by relatively low debt-to-equity and debt-to-assets ratios, which remained consistent year-over-year.

Once you have completed this worksheet:

1. Save to .pdf.
2. Rename it per the instructions.
3. Upload to Savanna as your Week 8 Assignment Submission.
4. **Celebrate a job well done!**