

Critical thinking assignment essay sample



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Emily Smith just received a promotion at work that increased her annual salary to \$42,000. She is eligible to participate in her employer's 401(k) retirement plan to which the employer matches, dollar for dollar, workers' contributions up to 5% of salary. However, Emily wants to buy a new \$25,000 car in 3 years, and she wants to have enough money to make a \$10,000 down payment on the car and finance the balance. Fortunately, she expects a sizable bonus this year that she hopes will cover that down payment in 3 years. A wedding is also in her plans. Emily and her boyfriend, Paul, have set a wedding date two years in the future, after he finishes medical school. In addition, Emily and Paul want to buy a home of their own in 5 years.

This might be possible because two years later, Emily will be eligible to access a trust fund left to her as an inheritance by her late grandfather. Her trust fund has \$80,000 invested at an interest rate of 5%. 1. Justify Emily's participation in her employer's 401(k) plan using the time value of money concepts by calculating the actual annual return on her own contributions. She will contribute \$1,000 per year to her 401(k) for 25 years and the employer will match dollar for dollar. Assume that her 401(k) earns 6% per year for 25 years and all contributions are made at the end of each year. The formula that we applied here is $FVAN = PMT * [(1+I)^N - 1]/I$ In this case,

$PMT = 1,000$ (Emily's contribution) + $1,000$ (matching from employer) = $2,000$ USD
 $I = 0.06$ $N = 25$

The result is $FVA_{25} = 109,729$ USD

2. Calculate the amount of money that Emily needs to set aside from her bonus this year to cover the down payment on a new car, assuming she can

earn 4% on her savings. What if she could earn 10% on her savings? The formula we applied here is $PMT = FVAN * I / [(1+I)^N - 1]$

In the first case,

$$FVA3 = 10,000 \text{ USD}$$

$$I = 0.04$$

$$N = 3$$

The result is $PMT = 3,141 \text{ USD}$. However, since this payment includes the employer's matching which is equal to Emily's contribution, Emily needs to set aside $3,141/2 = 1570.5 \text{ USD}$.

In the second case,

$$FVA3 = 10,000 \text{ USD}$$

$$I = 0.1$$

$$N = 3$$

The result is $PMT = 3,021 \text{ USD}$. However, since this payment includes the employer's matching which is equal to Emily's contribution, Emily needs to set aside $3,021/2 = 1510.5 \text{ USD}$.

3. What will be the value of Emily's trust fund in 36 years, assuming she takes possession of \$20,000 in 2 years for her wedding, and leaves the remaining amount of money untouched where it is currently invested? After 2 years, the balance of the trust fund is $80,000 * (1 + 0.05)^2 - 20,000 = 68,200 \text{ USD}$. After Emily's wedding, the trust fund in the next 34 years is $68,200 * 1.05^{34} = 358,278 \text{ USD}$. 4. Suggest at least two conditions that Emily and Paul could take to accumulate more for their retirement. Firstly, Emily

and Paul should invest her salary more in 401(k) plan. Currently, Emily only invests 1,000 USD per year, which is 2.38% of her yearly salary.

However, employer can match worker's contribution dollar for dollar up to 5% of annual salary and Emily needs to take full advantage of this. Secondly, Emily should withdraw money from her trust fund to invest in her 401(k) plan since the trust fund has only 5% return while the 401(k) plan has 6% return per year.

5. Suppose that Emily and Paul purchase a \$200,000 home in 5 years and make \$40,000 down payment immediately. Find the monthly mortgage payment assuming that the remaining balance is financed at a 3% fixed rate for 15 years. What if its mortgage term is 30 years? The balance Emily needs to cover in the next 15 years is $200,000 - 40,000 = 160,000$ USD. The monthly charge on the balance is $3/12 = 0.25\% = 0.0025$

The number of periods is $15 \times 12 = 180$ months

The monthly payment is $PMT = 160,000 / = 1,104.93$ USD

If the term is 30 years, the number of periods is $30 \times 12 = 360$ months The monthly payment is $PMT = 160,000 / = 674.57$ USD

6. What can you conclude about the relationship between the mortgage term and the amount of the monthly payment? From Question 5, is the monthly payment with the 30-year term half as large as the monthly payment with the 15-year term? Explain.

The longer the mortgage term, the smaller the amount of the monthly payment. Half of the monthly payment with the 15-year term is smaller than the monthly payment with 30-year term. Explanation:

If the term is 15 years, then $PMT =$ then $PMT = =$

If the term is 30 years, then $PMT = =$

Since $<$

Then $PMT_{30 \text{ years}} > PMT_{15 \text{ years}}$

Use the following information to answer the following questions.

ABC, Inc. Income Statement (in thousands)

December 31, 2014

Sales \$200, 000

Cost of goods sold 140, 000

Gross profit on sales 60, 000

Operating expenses 56, 000

Operating income (EBIT) 4, 000

Interest expense 1, 000

Earnings before tax 3, 000

Income tax 1, 050

Net income available to common stockholders \$1, 950

Number of shares outstanding 1, 500 Market price per share \$22

ABC, Inc. Balance Sheet (in thousands)

December 31, 2014

Assets

Cash \$2, 000

Accounts receivable 17, 800

Inventories 8, 700

Total current assets 28, 500

Gross fixed assets 70, 000

Accumulated depreciation 26, 500

Net fixed assets 43, 500

Total assets \$72, 000

Liabilities and Equity

Accounts payable \$18, 000

Accruals 13, 350

Total current liabilities 31, 350

Long-term debt 8, 250

Total liabilities 39, 600

Common stock (par value and paid in capital) 2, 000

Retained earnings 30, 400

Total stockholders' equity 32, 400

Total liabilities and equity \$72, 000

Industry Key Ratios

Industry Average Ratios

Current ratio 1. 1

Quick ratio 0. 60

Days Sales Outstanding (DSO) 25 days

Fixed assets turnover 5. 8

Total asset turnover 2. 95

Liabilities-to-assets ratio 65%

Times-interest-earned 3. 2

Net profit margin 1. 3%

Return on equity 7. 32%

Price/earnings ratio 20. 38

Market/book ratio 3. 19

1. Calculate current ratio and acid test ratio for the firm. Current ratio = = 0.9

Acid test ratio = = 0.63

2. Calculate DSO, fixed assets turnover, and total asset turnover for the firm.

DSO = = 32 days

Fixed assets turnover = = 4.6

Total asset turnover = 2.78

3. Calculate liabilities-to-assets ratio and times-interest-earned ratio for the firm. Liabilities-to-assets = * 100= 55%

Times-interest-earned = = 4

4. Calculate net profit margin and return on equity for the firm. Net profit margin = * 100 = 0.98%

Return on equity = = 6%

5. Evaluate the performance of the firm relative to the average performance of the industry in the following areas:

Liquidity management

Overall, both the current ratio and quick ration are pretty good, especially the latter. It indicates that the firm is capable of paying its debt pretty quick, although it needs to collect the account receivables soon. Asset

management

The DSO which is 7 days larger than the industry ratio indicates the customers often pay lately. However, the credit term of the firm is needed to evaluate further to see whether the credit manager is doing good or not. The fixed asset turnover is lower than the industry ration. This indicates that the firm does not use its fixed asset as intensively as other companies in the

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industry. The total assets turnover is slightly lower than the industry ratio.

This indicate that, given its total assets, the firm generates sales as larger as other companies, which is good. Debt management

The liabilities-to-assets ratio of the firm is pretty lower than the industry average. This is quite good since the firm is not much at risk like others.

Times-interest-earned ratio of the firm is higher than the average. The firm is good in paying its annual interest to creditors and this is very safe.

Profitability management

The net profit margin of the firm is lower than average. This indicates that the operating cost is pretty high and needed to be cut down in order to be profitable. The ROE of the firm is lower than the average. This indicates that the firm pays its stockholders not as good as other firms.

6. What is the firm's price/earnings ratio and market/book ratio? What do these ratios tell us about the firm? Book value per share = = 21. 6 USD

Earnings per share = = 1. 3 USD

Price/earnings = = 16. 9

Market/book = = 1. 01