Financial ratios and sustainable growth rate essay sample

1. What are the three types of financial management decisions? For each type of decision, give an example of a business transaction that would be relevant.

Capital budgeting (deciding whether to expand a manufacturing plant), capital structure (deciding whether to issue new equity and use the proceeds to retire outstanding debt), and working capital management (modifying the firm's credit collection policy with its customers).

2. Evaluate the following statement: Managers should not focus on the current stock value because doing so will lead to an overemphasis on short-term profits at the expense of long-term profits.

Presumably, the current stock value reflects the risk, timing, and magnitude of all future cash flows, both short-term and long-term. If this is correct, then the statement is false.

3. Why might the revenue and cost figures shown on a standard income statement not be representative of the actual cash inflows and outflows that occurred during a period?

The recognition and matching principles in financial accounting call for revenues, and the costs associated with producing those revenues, to be " booked" when the revenue process is essentially complete, not necessarily when the cash is collected or bills are paid. Note that this way is not necessarily correct; it's the way accountants have chosen to do it.

4. Jetson Spacecraft Corp. shows the following information on its 2009 income statement: sales $ 196, 000; costs $104, 000; other expenses $6,

800; depreciation expense $9, 100; interest expense $14, 800; taxes $21, 455; dividends $10, 400. In addition, you're told that the firm issued $5, 700 in new equity during 2009 and redeemed $7, 300 in outstanding long-term debt.

a. What is the 2009 operating cash flow?

OCF = EBIT + Depreciation – Taxes = $76, 100 + 9, 100 – 21, 455 = $63, 745

b. What is the 2009 cash flow to creditors?

CFC = Interest – Net new LTD = $14, 800 – (–7, 300) = $22, 100

c. What is the 2009 cash flow to stockholders?

CFS = Dividends – Net new equity = $10, 400 – 5, 700 = $4, 700

d. If net fixed assets increased by $27, 000 during the year, what was the addition to NWC?

We know that CFA = CFC + CFS, so:

CFA = $22, 100 + 4, 700 = $26, 800

CFA is also equal to OCF – Net capital spending – Change in NWC. We already know OCF. Net capital spending is equal to:

Net capital spending = Increase in NFA + Depreciation = $27, 000 + 9, 100 = $36, 100

Now we can use:

CFA = OCF – Net capital spending – Change in NWC

$26, 800 = $63, 745 – 36, 100 – Change in NWC

Solving for the change in NWC gives $845, meaning the company increased its NWC by $845.

5. Explain what it means for a firm to have a current ratio equal to . 50. Would the firm be better off if the current ratio were 1. 50? What if it were 15. 0? Explain your answers.

A current ratio of 0. 50 means that the firm has twice as much in current liabilities as it does in current assets; the firm potentially has poor liquidity. If pressed by its short-term creditors and suppliers for immediate payment, the firm might have a difficult time meeting its obligations. A current ratio of 1. 50 means the firm has 50% more current assets than it does current liabilities. This probably represents an improvement in liquidity; short-term obligations can generally be met completely with a safety factor built in. A current ratio of 15. 0, however, might be excessive. Any excess funds sitting in current assets generally earn little or no return. These excess funds might be put to better use by investing in productive long-term assets or distributing the funds to shareholders.

6. Y3K, Inc., has sales of $5, 276, total assets of $3, 105, and a debt–equity ratio of 1. 40. If its return on equity is 15 percent, what is its net income?

This is a multi-step problem involving several ratios. The ratios given are all part of the DuPont Identity. The only DuPont Identity ratio not given is the profit margin. If we know the profit margin, we can find the net income since sales are given. So, we begin with the DuPont Identity:

ROE = 0. 15 = (PM)(TAT)(EM) = (PM)(S / TA)(1 + D/E)

Solving the DuPont Identity for profit margin, we get:

PM = [(ROE)(TA)] / [(1 + D/E)(S)]

PM = [(0. 15)($3, 105)] / [(1 + 1. 4)($5, 726)] = . 0339

Now that we have the profit margin, we can use this number and the given sales figure to solve for net income:

PM = . 0339 = NI / S

NI = . 0339($5, 726) = $194. 06

7. In chapter 4, the book used Rosengarten Corporation to demonstrate how to calculate EFN. The ROE for Rosengarten is about 7. 3 percent, and the plowback ratio is about 67 percent. If you calculate the sustainable growth rate for Rosengarten, you will find it is only 5. 14 percent. In the calculation for EFN, a growth rate of 25 percent was used. Is this possible? Explain.

Two assumptions of the sustainable growth formula are that the company does not want to sell new equity, and that financial policy is fixed. If the company raises outside equity, or increases its debt-equity ratio it can grow at a higher rate than the sustainable growth rate. Of course the company

could also grow faster than its profit margin increases, if it changes its dividend policy by increasing the retention ratio, or its total asset turnover increases.

8. Given the following data and assuming no taxes, what is EFN?

| Income Statement | Balance Sheet | | Sales |$4, 900 | Assets |$11, 125 | Debt |$6, 927 | | Costs | 3, 136 | | | Equity | 4, 198 | | Net income |$1, 764 | Total |$11, 125 | Total |$11, 125 | |[pic] |

| Assets and costs are proportional to sales. Debt and equity are not. No dividends are paid. Next year's sales are projected to be $5, 880 | | | | An increase of sales to $5, 880 is an increase of: | | Sales increase = ($5, 880 – 4, 900)

/ $4, 900 | | Sales increase = . 20 or 20% |

| Assuming costs and assets increase proportionally, the pro forma financial statements will look like this: |

| Pro forma income statement |
| Sales |$5, 880 | | Costs | 3, 763 | | Net income |$2, 117 |

| Pro forma balance sheet | | Assets |$13, 350 | Debt |$6, 927 | | | | | Equity | 6, 315 | | Total |$13, 350 | Total |$13, 242 | |[pic] |

| If no dividends are paid, the equity account will increase by the net income, so: | | Equity = $4, 198 + 2, 117 | | Equity = $6, 315 | | So the EFN is: | | EFN = Total assets – Total liabilities and equity | | EFN = $13, 350 – 13, 242 = $108 |

9. Based on the following information, calculate the sustainable growth rate for Hendrix Guitars, Inc.:

Profit margin 4. 8%

Total asset turnover 1. 25

Total debt ratio . 65

Payout ratio 30%

We should begin by calculating the D/E ratio. We calculate the D/E ratio as follows:

Total debt ratio = . 65 = TD / TA

Inverting both sides we get:

1 / . 65 = TA / TD

Next, we need to recognize that

TA / TD = 1 + TE / TD

Substituting this into the previous equation, we get:

1 / . 65 = 1 + TE /TD

Subtract 1 (one) from both sides and inverting again, we get:

D/E = 1 / [(1 / . 65) – 1]

D/E = 1. 86

With the D/E ratio, we can calculate the EM and solve for ROE using the DuPont identity:

ROE = (PM)(TAT)(EM)

ROE = (. 048)(1. 25)(1 + 1. 86)

ROE = . 1714 or 17. 14%

Now we can calculate the retention ratio as:

b = 1 – . 30

b = . 70

Finally, putting all the numbers we have calculated into the sustainable growth rate equation, we get:

Sustainable growth rate = (ROE × b) / [1 – (ROE × b)]

Sustainable growth rate = [. 1714(. 70)] / [1 – . 1714(. 70)]

Sustainable growth rate = . 1364 or 13. 64%

10. Businesses sometimes advertise that you should, " Come try our product. If you do, we'll give you $100 just for coming by!" If you read the fine print, what you find out is that they will give you a savings certificate that will pay you $100 in 25 years or so. Is it deceptive advertising? Is it unethical to advertise a future value like this without a disclaimer?

It would appear to be both deceptive and unethical to run such an ad without a disclaimer or explanation.

11. You are scheduled to receive $ 20, 000 in two years. When you receive it, you will invest it for six more years at 8. 4 percent per year. How much will you have in eight years?

We need to find the FV of a lump sum. However, the money will only be invested for six years, so the number of periods is six.

$FV = PV(1 + r)t$

$FV = \$20,000(1.084)6 = \$32,449.33$

12. Should lending laws be changed to require lenders to report EARs instead of APRs? Why or why not? Yes, they should. APRs generally don't provide the relevant rate. The only advantage is that they are easier to compute, but, with modern computing equipment, that advantage is not very important.

13. A local finance company quotes a 16 percent interest rate on one- year loans. So, if you borrow $25, 000, the interest for the year will be $4, 000. Because you must repay a total of $29, 000 in one year, the finance company requires you to pay $29, 000/ 12, or $2, 416. 67, per month over the next 12 months. Is this a 16 percent loan? What rate would legally have to be quoted? What is the effective annual rate?

To find the APR and EAR, we need to use the actual cash flows of the loan. In other words, the interest rate quoted in the problem is only relevant to determine the total interest under the terms given. The interest rate for the cash flows of the loan is:

$PVA = \$25,000 = \$2,416.67\{(1 – [1 / (1 + r)]12) / r \}$

Again, we cannot solve this equation for r, so we need to solve this equation on a financial calculator, using a spreadsheet, or by trial and error. Using a spreadsheet, we find:

r = 2. 361% per month

So the APR is:

APR = 12(2. 361%) = 28. 33%

And the EAR is:

EAR = (1. 02361)12 – 1 = . 3231 or 32. 31%

14. What is the value of an investment that pays $ 15, 000 every other year forever, if the first payment occurs one year from today and the discount rate is 10 percent compounded daily?

The cash flows in this problem occur every two years, so we need to find the effective two year rate. One way to find the effective two year rate is to use an equation similar to the EAR, except use the number of days in two years as the exponent. (We use the number of days in two years since it is daily compounding; if monthly compounding was assumed, we would use the number of months in two years.) So, the effective two-year interest rate is:

Effective 2-year rate = [1 + (. 10/365)]365(2) – 1 = . 2214 or 22. 14%

We can use this interest rate to find the PV of the perpetuity. Doing so, we find:

PV = $15, 000 /. 2214 = $67, 760. 07

This is an important point: Remember that the PV equation for a perpetuity (and an ordinary annuity) tells you the PV one period before the first cash flow. In this problem, since the cash flows are two years apart, we have found the value of the perpetuity one period (two years) before the first payment, which is one year ago. We need to compound this value for one year to find the value today. The value of the cash flows today is:

PV = $67, 760. 07(1 + . 10/365)365 = $74, 885. 44

15. A company is contemplating a long-term bond issue. It is debating whether to include a call provision. What are the benefits to the company from including a call provision? What are the costs?

There are two benefits. First, the company can take advantage of interest rate declines by calling in an issue and replacing it with a lower coupon issue. Second, a company might wish to eliminate a covenant for some reason. Calling the issue does this. The cost to the company is a higher coupon. A put provision is desirable from an investor's standpoint, so it helps the company by reducing the coupon rate on the bond. The cost to the company is that it may have to buy back the bond at an unattractive price.

16. Both Bond Sam and Bond Dave have 9 percent coupons, make semiannual payments, and are priced at par value. Bond Sam has 3 years to maturity, whereas Bond Dave has 20 years to maturity. If interest rates suddenly rise by 2 percent, what is the percentage change in the price of Bond Sam? Of Bond Dave?

Any bond that sells at par has a YTM equal to the coupon rate. Both bonds sell at par, so the initial YTM on both bonds is the coupon rate, 9 percent. If the YTM suddenly rises to 11 percent:

PSam = $45(PVIFA5. 5%, 6) + $1, 000(PVIF5. 5%, 6) = $950. 04

PDave = $45(PVIFA5. 5%, 40) + $1, 000(PVIF5. 5%, 40) = $839. 54

The percentage change in price is calculated as:

Percentage change in price = (New price – Original price) / Original price

(PSam% = ($950. 04 – 1, 000) / $1, 000 = – 5. 00%

(PDave% = ($839. 54 – 1, 000) / $1, 000 = – 16. 05%

17. A substantial percentage of the companies listed on the NYSE and NASDAQ don't pay dividends, but investors are nonetheless willing to buy shares in them. Under what circumstances might a company choose not to pay dividends?

In general, companies that need the cash will often forgo dividends since dividends are a cash expense. Young, growing companies with profitable investment opportunities are one example; another example is a company in financial distress. This question is examined in depth in a later chapter.

18. Storico Co. just paid a dividend of $ 2. 45 per share. The company will increase its dividend by 20 percent next year and will then reduce its dividend growth rate by 5 percentage points per year until it reaches the industry average of 5 percent dividend growth, after which the company will

keep a constant growth rate forever. If the required return on Storico stock is 11 percent, what will a share of stock sell for today?

Here we have a stock with supernormal growth, but the dividend growth changes every year for the first four years. We can find the price of the stock in Year 3 since the dividend growth rate is constant after the third dividend. The price of the stock in Year 3 will be the dividend in Year 4, divided by the required return minus the constant dividend growth rate. So, the price in Year 3 will be:

$P3 = \$2.45(1.20)(1.15)(1.10)(1.05) / (.11 - .05) = \$65.08$

The price of the stock today will be the PV of the first three dividends, plus the PV of the stock price in Year 3, so:

$P0 = \$2.45(1.20)/(1.11) + \$2.45(1.20)(1.15)/1.11^2 + \$2.45(1.20)(1.15)(1.10)/1.11^3 + \$65.08/1.11^3$ $P0 = \$55.70$

19. What is the relationship between IRR and NPV? Are there any situations in which you might prefer one method over the other? Explain. IRR is the interest rate that causes NPV for a series of cash flows to be zero. NPV is preferred in all situations to IRR; IRR can lead to ambiguous results if there are non-conventional cash flows, and it also ambiguously ranks some mutually exclusive projects. However, for stand-alone projects with conventional cash flows, IRR and NPV are interchangeable techniques.

20. An investment under consideration has a payback of seven years and a cost of $724, 000. If the required return is 12 percent, what is the worst-case NPV? The best-case NPV? Explain. Assume the cash flows are conventional.

Given the seven year payback, the worst case is that the payback occurs at the end of the seventh year. Thus, the worst-case:

NPV = –$724, 000 + $724, 000/1. 127 = –$396, 499. 17

The best case has infinite cash flows beyond the payback point. Thus, the best-case NPV is infinite.