King Saud University

Department of Mathematics

First Trimester 1444 H

Midterm Exam

Actuarial Corporate Finance

ACTU 262, Duration:2 Hours

Name:
Sequence Number:
Section:
Date: 6/10/2022

Note: The exam consists of 4 pages

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Exercise 2	6
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Exercise 1 (MCQ)

1) Limited Liability is main feature of ____________

1
a) Sole Proprietorship
b) Partnership
c) Corporations
d) None of the above

2) In his traditional role, the finance manager is responsible for of __________

1
a) arrange of utilization of funds
b) arrangement of financial resources
e) acquiring capital assets of the organization
f) effective management of capital

3) Working capital management is managing __________

1
a) short term assets and liabilities
b) long term assets
c) long term liabilities
d) only short-term assets

4) The creditors of company are usually interested in observing the_________

1
a) Liquidity Ratio
or
b) Solvency Ratio
c) Profitability Ratio
d) Turnover Ration

5) What does the accounts receivable turnover ratio tell us

a) How often account receivable received
1
b) How many time account receivables is collected
c) Account receivable balance at the end of the period
d) Bad debt balance at the year end

6) DuPont Analysis deals with:

a) Analysis of Current Assets
1
b) Analysis of Profit
c) Capital Budgeting
d) Analysis of Fixed Assets

7) **Firm A has a Return on Equity equal to 24%, while firm B has an ROE of 15% during the same year. Both firms have a total debt ratio equal to 0.8. Firm A has an asset turnover ratio of 0.9, while firm B has an asset turnover ratio equal to 0.4. From this we know that**

1
a) Firm A has a higher profit margin than firm B
b) Firm B has a higher profit margin than firm A
c) Firm A and B have the same profit margin
d) Firm A has a higher equity multiplier than firm B

Use the following information to answer items 8 - 10:

Current Assets	65,000
Current Liabilities	60,000
Account Receivable	15,000
Inventories	20,000
Account payable	40,000
Net Sales	365,000
Cost of goods sold	280,000

8) **The company's current ratio is:**

1
a) 2.1
b) 1.1
c) 0.1
d) 0.9

9) **The company's acid test ratio is:**

a) 0.9
b) 1.1
1
c) 0.75
d) 0.87

10) **The Inventory Turnover Ratio is:**

a) 7
1
b) 14
c) 18
d) 9

Exercise 2 [6]

Schwert Corp. shows the following information on its 2019 income statement: sales= $246,000; costs =$135,000; other expense=$7,100; depreciation expense = $19,100; interest expense = $10,000; taxes = $18,876; dividends =$9,800. In addition, you're told that the firm issued $7,900 in new equity during 2019 and redeemed $6,800 in outstanding long-term debt.

a) What is the 2019 operating cash flow?
b) What is the 2019 cash flow to creditors?
c) What is the 2019 cash flow to stockholders?
d) If net fixed assets increased by $41,900 during the year, what was the addition to net working capital (NWC)?

Income Statement	
Sales	$246,000
Costs	$135,000
Other Expenses	$7,100
Depreciation expense	$19,100
EBIT	$84,800

ANSWERS:

a) What is the 2019 operating cash flow?

OCF = EBIT + Depreciation - Tax

Depreciation =$19,100

2

Taxes = $18,876

OCF = $84,000

OCF = $84,000 +$19,100 - $18,876

OCF = $85,024

b) What is the 2019 cash flow to creditors?

Cash Flow to Creditors = Interest - New Net Long Term Debt

Interest = $10,000

2

New Net LTD = – $6,800

Cash Flow to Creditors = $10,000 - (-$6,800) = **$16,800**

c) What is the 2019 cash flow to stockholders?

Cash Flow to Stockholders = Dividends - Net New Equity

Dividends = $9,800

Net New Equity = $7,900

Cash Flow to Stockholders = $9,800 - $7,900 = **$1,900**

d) If net fixed assets increased by $41,900 during the year, what was the addition to net working capital (NWC)?

- CFFA = Cash flow to Creditors + Cash Flow to Stockholders
- CFFA = $16,800 + $1,900
- CFFA = $18,700

- CFFA = OCF - Net Capital Spend - ΔNWC
- OCF = $85,024
- Net Capital Spend = Increase in Net Fixed Assets + Depreciation
    - NCS = $41,900 + $19,100 = $61,000
    - $18,700 = $85,024 - $61,000 - **ΔNWC**

ΔNWC = $5,324

Excircies 3 [4]

During 2019, Rainbow Umbrella Corp. had sales of $630,000.
Cost of goods sold, administrative and selling expenses, and depreciation expenses were $465,000, $85,000 and $135,000, respectively. In addition, the company had an interest expense of $70,000 and a tax rate of 21 percent. (Assume that interest is fully deductible.)

a. What is the company's net income for 2019?
b. What is its operating cash flow?
c. Interpret your results in (a) and (b).

Answer:

2

	Income Statement	
	Sales	$630,000
	COGS	465,000
	A&S expenses	85,000
	Depreciation	135,000
	EBIT	–$55,000
	Interest	70,000
	Taxable income	–$125,000
	Taxes (21%)	0
a.	Net income	–$125,000

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b. OCF = EBIT + Depreciation – Taxes
OCF = –$55,000 + 135,000 – 0
OCF = $80,000

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c. Net income was negative because of the tax deductibility of depreciation and interest expense. However, the actual cash flow from operations was positive because depreciation is a non-cash expense and interest is a financing expense, not an operating expense.

Exercise 4 [10]

The most recent financial statements for Scott, Inc., appear below:
Sales for 2020 are projected to grow by 20 percent. Interest expense will remain constant; the tax rate and the dividend payout rate also will remain constant. Costs, other expenses, current assets, fixed assets, and accounts payable increase spontaneously with sales.

SCOTT, INC.
2019 Income Statement

Sales		$891,600
Costs		727,900
Other expenses		18,240
Earnings before interest and taxes		$145,460
Interest expense		13,400
Taxable income		$132,060
Taxes (22%)		29,053
Net income		$103,007
Dividends	$36,224	
Addition to retained earnings	66,783	

SCOTT, INC.
Balance Sheet as of December 31, 2019

Assets		Liabilities and Owners' Equity	
Current assets		Current liabilities	
Cash	$ 24,280	Accounts payable	$ 65,200
Accounts receivable	37,070	Notes payable	16,320
Inventory	83,400	Total	$ 81,520
Total	$144,750	Long-term debt	$155,000
		Owners' equity	
Fixed assets		Common stock and paid-in surplus	$130,000
Net plant and equipment	$396,500	Retained earnings	174,730
		Total	$304,730
Total assets	$541,250	Total liabilities and owners' equity	$541,250

a) Suppose that the firm is operating at full capacity and no new debt or equity is issued, what external financing is needed to support the 20 percent growth rate in sales?

b) Suppose now the firm was operating at only 80 percent capacity in 2019, What is EFN now?

c) Suppose now the firm was operating at only 90 percent capacity in 2019, What is EFN now?

d) Find the internal growth rate.

e) Now, suppose the firm wishes to keep its debt-equity ratio constant. What is EFN now?

A)

. Assuming costs vary with sales and a 20 percent increase in sales, the pro forma income statement will look like this:

Pro Forma Income Statement	
Sales	$ 1,069,920
Costs	873,480
Other expenses	21,888
EBIT	$ 174,552
Interest	13,400
Taxable income	$ 161,152
Taxes (22%)	35,453
Net income	$ 125,699

The payout ratio is constant, so the dividends paid this year is the payout ratio from last year times net income, or:

Dividends = ($36,224/$103,007)($125,699)
Dividends = $44,204

Dividends = ($36,224/$103,007)($125,699)
Dividends = $44,204

And the addition to retained earnings will be:

2

Addition to retained earnings = $125,699 – 44,204
Addition to retained earnings = $81,495

The new retained earnings on the pro forma balance sheet will be:

New retained earnings = $174,730 + 81,495
New retained earnings = $256,225

The pro forma balance sheet will look like this:

Pro Forma Balance Sheet

Assets		Liabilities and Owners' Equity	
Current assets		Current liabilities	
Cash	$ 29,136	Accounts payable	$ 78,240
Accounts receivable	44,484	Notes payable	16,320
Inventory	100,080	Total	$ 94,560
Total	$ 173,700	Long-term debt	155,000
Fixed assets			
Net plant and equipment	475,800	Owners' equity	
		Common stock and paid-in surplus	$ 130,000
		Retained earnings	256,225
		Total	$ 386,225
Total assets	$ 649,500	Total liabilities and owners' equity	$ 635,785

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So the EFN is:

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EFN = Total assets – Total liabilities and equity
EFN = $649,500 – 635,785
EFN = $13,715

B)

Full Capacity = 891,600 / 0.8 = 1,114,500 which is greater than projected sales 1,096,000.

2

In a) we assume it would necessary to add 79,300 in fixed asset. As a result, our original estimate of 13,715 in EFN is too high and consequently, no spending on net fixed asset is needed.

We need only 13,715 – 79,300 = -65,585 Surplus.

C- sales full capacity=891600/0.90 = 990666.6667

Ratio= 396500/990666.6667= 0.4

1,069,920 X 0.4= 427,968

So, 475800-427968=47832

2

Then EFN= 13,715-47,832=-34,116 surplus

d)Internal growth rate=

ROA=103007/541250=0.19

, b=66783/103007=0.648

Internal growth rate= [0.19 X0.648]/ [1-0.19X 0.648]= 0.14

1

E)

C) To maintain the debt-equity ratio constant, we use the sustainable growth rate:

$$\text{Sustainable Growth Rate} = \frac{ROE \times b}{1 - ROE \times b}$$

ROE = 103,007/304,730 = 0.338 = 0.338
b = 66,783/ 103,007 = 0.648
We deduce the SGR = 28%

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By increasing the sales by 28%, we obtain

Proforma Income statement

Sales	1, 141, 248
Costs	937,711
Other expenses	23, 347
EBIT	180, 190
Interest	17,151
Taxable Income	163,039
Taxes	35,868
Net Income	**127,171**
Dividend	**44,721**
Addition to retained Earinigs	**82,450**

1

Pro Forma Balance Sheet

Pro Forma Balance Sheet SCOTT, INC.			
Assets		**Liabilities**	
Current Assets		**Current Liabilities**	
Cash	31,078.40	Accounts Payable	83, 456
Accounts Receivable	47,449.60	Notes Payable	16,320
Inventory	106,752		
Total	185,280	**Total**	99,776
Net Fixed Assets		Long Term Debt	155,000
Net Plants and Equipment	505,520	Owners Equity	
		Common Stock and paid-in surplus	130,000 174,730
		Retained Earnings	387,180
Total Assets	690,800	Total	641,956
		EFN	48,844

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