Fundamentals of Corporate Finance 6th Edition Christensen Solutions Manual

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CHAPTER 2: SOLUTIONS TO QUESTIONS AND PROBLEMS

- 1 Net profit contains non-cash deductions not included in operating cash flow. Operating cash flow could be positive with a negative profit if, for example, depreciation were relatively large.
- 2 The total of assets must equal the total of liabilities and equity. Here it is assumed that capital is the balancing item.

Burn Ltd			
Balance Sheet			
		as at 30 June 20XX	
Assets		Liabilities and Equity	
Cash	5 000	Creditors	8 000
Debtors	10 000	Debt	70 000
Machinery	50 000		
Patents	92 000	Retained earnings	38 000
		Capital	41 000
	157 000		157 000
	Movie	Sales Company Ltd	
	Statement of	f Financial Performance	

Sales	1 000 000
Cost of goods sold	300 000
Selling expense	100 000
Depreciation	100 000
EBIT	500 000
Interest expense	80 000
Profit before tax	420 000
Tax	126 000
Profit after tax	294 000

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a	EBIT	= \$500 000
b	Net profit	= \$294 000
c	Operating cash flow	= EBIT + Depreciation – Taxes
		$= 500\ 000 + 100\ 000 - 126\ 000$
		= \$474 000

4 a

Birdbath Corporation Ltd

Income Statement

	20XX	20XX+1
Sales	2 000	1 800
Cost of goods sold	660	540
Depreciation	400	350
Operating expenses	95	102
EBIT	845	808
Tax	<u>254</u>	<u>242</u>
Profit after tax	591	566
OCF	20XX 20X	X+1
EBIT	845	808
+ Depreciation	400	350

254

991

b

- Taxes

c The difference between accounting profit and cash flow lies with the non-cash depreciation deduction.

242

916

5 Liquidity refers to the speed and ease with which an asset can be converted to cash. The two dimensions represent the liquidity trade-off that exists with any asset: ease of conversion versus loss of value.

6	Net capital spending	= Ending n/c assets – beginning n/c assets + depreciation	
		= \$191 000 - \$181 000 + \$88 000	
		= \$98 000	

7

	20XX	20XX+1	
Non-current			
liabilities	60 000 000	55 000 000	
Share capital	120 000 000	130 000 000	
Retained earnings	20 000 000	30 000 000	
Total	200 000 000	215 000 000	
Taxable income	$=(30\% \times \$215\ 000) -\$$	1000	= \$63 500
Tax bill	= 30% (\$63 500 - \$37 0	00) + \$4 650	= \$12 600
Average tax rate	= \$12 600/\$63 500		= 19.84%
Marginal tax rate			=30%

9

8

a	Taxable income	$=(50\% \times \$21\ 000) - \7500	= \$100 000
	Tax bill	$= 37\%(\$100\ 000 - 80\ 000) + \$17\ 550$	= \$24 950
	Average tax rate	= \$24 950/\$100 000	= 24.95%
	Marginal tax rate		= 37%

b The change is not advisable because at income levels below \$100 000 the company average tax rate (30%) is greater than the individual average tax rate.

 10
 Ending NWC
 = \$930 - \$590 = \$340

 Beginning NWC
 = \$660 - \$280 = \$380

Additions to net working capital = Ending NWC – Beginning NWC = 340 - 380= -\$40

Foster Ltd Balance Sheet						
	30 June 20XX and 30 June 20XX+1					
Assets 20XX 20XX+1 Liabilities 20XX 20XX+1						
Current assets	176	208	Current liabilities	98	116	
Non-current assets	770	881	Non-current liabilities	569	576	
Owners' equity 279 397						
Total assets9461089Total liabilities & OE9461089						

Foster Ltd

for period ending 30 June 20XX+1	
Sales	1995
Costs	647
Depreciation	228
EBIT	1120
Interest paid	116
Taxable income	1004
Taxes 30%	301
Net profit	703

Income Statement

a	Owners' equity for 20XX	= 946 - 667	= \$279
	Owners' equity for 20XX+1	= 1089 - 692	= \$397

b	NWC for 20XX	= 176 - 98	=\$78
	NWC for 20XX+1	= 208 - 116	= \$92
	Additions to NWC	= 92 - 78	= \$14

c Net profit for 20XX+1 = \$703

Operating cash flow = 1120 + 228 - 301 = \$1047

d	Non-current assets sold	= 500 + 770 - 881 - 228	= \$161
	Capital spending	= 500 - 161	= \$339
	Cash flow from assets	= 1047 - 339 - 14	= \$694

e Debt repaid = 569 + 50 - 576 = \$43

Cash flow to debtholders = 116 - 576 + 569 = \$109

12

Depreciation	= Beginning n/c assets + Investments – Ending n/c assets		
	= \$357 000 + \$275 000 - \$443 000		
	= \$189 000		

13

	Market value	$=$ \$2.3 \times 7m	= \$16.1m
Book value	= Net assets	= \$12.4m	

The values shown on the Balance Sheet for the firm's assets are book values and, except for current assets, rarely correspond to the assets' market value. For a financial manager, market value is more relevant because these values reflect economic reality.

14

Hugh Ltd Balance Sheets 30 June 20XX and 30 June 20XX+1					
Assets	20XX	20XX+1	Liabilities	20XX	20XX+1
Current assets			Current liabilities		
Cash	640	735	Accounts pay.	664	659
Receivables	912	967	Notes payable	122	103
Inventory	1 440	1 489	Total	786	762
Total	2 992	3 191	Non-current	2 349	2 666
			liabilities		
Non-current assets	5 556	5 637	Owners' equity	5 413	5 400
Total assets	8 548	8 828	Total liabilities &	8 548	8 828
			OE		

Hugh Ltd

Income Statement

	20XX	20XX+1
Sales	1145	1200
COGS	450	537
Depreciation	128	128
Other expenses	110	98
EBIT	457	437
Interest paid	85	96
Taxable income	372	341
Tax	112	102
Net profit	260	239
Retained earnings Dividends	160 100	129 110

for periods ending 30 June 20XX and 30 June 20XX+1

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Operating cash flow	=437+128-102	= \$463
Net capital spending	= 5637 - 5556 + 128	= \$209
Addition to NWC	=(3191 - 762) - (2992 - 786)	= \$223
Cash flow from assets	= 463 - 209 - 223	=\$31

Cash flow to debtholders	= 96 - (2666 - 2349)	=-\$221
Cash flow to shareholders	= 110 + (5413 + 129 - 5400)	= \$252

Note: 31 = \$252 - 221 = 31, so the cash flow identity holds.

16	Cash flow	= net profit + non-cash expenses
		= \$60m + depreciation + goodwill + bad debts + last period costs
		= \$60m + \$6m + \$4m + \$0.7m + \$1.9m
		= \$72.6m

17	Plant and equipment 20XX-1	\$175 000
	Additions 20XX	115 000
		290 000
	Plant scrapped 20XX	15 000
	Plant and equipment 20XX	177 000
	Depreciation 20XX	<u>\$98 000</u>
18		
	Balance receivables 20XX-1	\$500 000
	Credit sales 20XX	680 000
		1 180 000
	Bad debts 20XX	5 000
		1 175 000
	Balance receivables 20XX	440 000
	Cash receipts	<u>\$735 000</u>
19		
a	Market value of equity $= 2$	200 million shares

l	Market value of equity	= 200 million shares @ \$4.40 = \$880 million
	Market value of the firm	= MV of debt + MV of equity
		= \$80m + \$880m = \$960 million

- b We tend to identify the value of the firm rather loosely; however, it is really the value of equity that is being identified. For public companies the price of their shares are quoted daily in newspapers so we can simply determine the equity value by multiplying the number of issued shares by the price per share. The value of the debt of the firm is much more complicated. Some of the long-term debt may be traded, so market prices are available, but current liabilities have no such markets so values are hard to estimate.
- MV of equity BV of equity = \$880m \$800m = \$80m
 The book value of equity is based on historic reporting. Revenues and costs are those that have occurred.

The market value of equity relates to the future. It is the best estimate by the market of the future prospects of the firm. In our example the market estimate based on current information is that the current value of equity in terms of its future trading prospects is \$880 million.

20

When preparing the Balance Sheet, remember that equity is the residual.

Olympic Records Ltd						
			Balance Sheet			
	20XX	20XX-1		20XX	20XX-1	
Current assets	\$2429	\$2 205	Current liabilities	\$1 255		\$1 003
Non-current assets	7 650	7 344	Non-current liabilities	2 085		3 106
			Equity	6 739		5 440
Total assets	\$10 079	\$9 549 =====	Equity/Liabilities	\$10 079 ======		\$9 549 =====
	Income St	atement 20X	X			
Sales			\$4 507			
Cost of goods sold			2 633			
Depreciation			952			
Earnings before intere	est and tax		\$922			
Interest paid			196			
Taxable income			\$726			
Tax 30%			218			
Net income			<u>\$508</u>			
Dividends			\$250			
Addition to retained e	earnings		\$258			

Operating Cash Flow 20XX	
Earnings before interest and taxes	\$922
+ depreciation	952
– taxation	218
Operating cash flow	<u>\$1 656</u>

Change in Non-current Assets 20XX			
Ending non-current assets	\$7 650		
- beginning non-current assets			
+ depreciation	952		
Net capital spending	<u>\$1 258</u>		

Change in Net Working Capital 20XX		
Ending net working capital [2429 – 1255]	\$1 174	
- beginning net working capital [2205 - 1003]	1 202	
Change	<u>(\$28)</u>	
Cash Flow from Assets 20XX		
Cash Flow from Assets 20XX		
Cash Flow from Assets 20XX Operating cash flow	1 656	
Cash Flow from Assets 20XX Operating cash flow – net capital spending	1 656 1 258	
Cash Flow from Assets 20XX Operating cash flow - net capital spending - change in net working capital	1 656 1 258 (28)	
Cash Flow from Assets 20XX Operating cash flow – net capital spending – change in net working capital	1 656 1 258 (28)	

* Note that this minus is a negative, so it becomes an addition.

*

Cash Flow to Creditors 20XX			
Interest paid		\$196	
– Net new borrowing	[2085	(1 021)	*
-3106]			
Cash flow to creditors		<u>\$1 217</u>	

* Long-term borrowing increased by \$1021. This is minus a negative, so it becomes a positive.

Cash Flow to Shareholders 20XX		
Dividend paid	\$250	
– Net equity raised	1 041	*
Cash flow to shareholders	<u>(\$791)</u>	_

* Total equity was up by \$6739 - 5440 = \$1299. The addition to retained earnings accounted for \$258 of this increase so the addition to equity \$1041 (\$1299 - 258) was from new equity raised.

As a check, notice that the cash flow from assets, \$426, equals the cash flow to creditors plus the cash flow to shareholders, 1217 - 791 = 426.

Active Company Pty Ltd

Income Statement

3 000 000
900 000
<u>550 000</u>
1 550 000
<u>650 000</u>
900 000
_270 000
630 000

22

Income Statement

Sales	2 000 000
Cost of goods sold	600 000
Administration expenses	200 000
EBIT	1 200 000
Interest expense	<u>100 000</u>
Profit before tax	1 100 000
Tax	<u>330 000</u>
Profit after tax	770 000

23

Operating cash flow	=	EBIT + depreciation - taxes
	=	$1\ 550\ 000+550\ 000-270\ 000$
	=	\$1 830 000

SOLUTIONS TO MINICASE

Below are the financial statements that you are asked to prepare.

1 The income statement for each year will look like this:

Income statement

	20XX	20XX+1
Sales	\$247 259	\$301 392
Cost of goods sold	126 038	159 143
Selling & administrative	24 787	32 352
Depreciation	35 581	40 217
EBIT	\$60 853	\$69 680
Interest	7 735	8 866
EBT	\$53 118	\$60 814
Taxes	10 624	12 163
Net profit	\$42 494	\$48 651
Dividends	\$21 247	\$24 326
Addition to retained earnings	21 247	24 326

2 The balance sheet for each year will be:

Balance sheet as of 30 June 20XX

Cash	\$18 187	Accounts payable	\$32 143
Accounts receivable	12 887	Notes payable	14 651
Inventory	27 119	Current liabilities	\$46 794
Current assets	\$58 193		
		Long-term debt	\$79 235
Non-current assets	\$156 975	Owners' equity	89 139
		Total liabilities &	
Total assets	\$215 168	equity	\$215 168

In the first year, equity is not given. Therefore, we must calculate equity as a plug variable. Since total liabilities & equity is equal to total assets, equity can be calculated as:

Equity = \$215 168 - 46 794 - 79 235

Equity = \$89 139

Balance sheet as of 30 June 20XX+1

Cash	\$27 478	Accounts payable	\$36 404
Accounts receivable	16 717	Notes payable	15 997
Inventory	37 216	Current liabilities	\$52 401
Current assets	\$81 411		
		Long-term debt	\$91 195
Non-current assets	\$191 250	Owners' equity	129 065
		Total liabilities &	
Total assets	\$272 661	equity	\$272 661

The owners' equity for 2010 is the beginning-of-year owners' equity, plus the addition to retained earnings, plus the new equity, so:

Equity = \$89 139 + 24 326 + 15 600

Equity = \$129 065

3 Using the OCF equation:

OCF = EBIT + Depreciation - Taxes

The OCF for each year is:

OCF20XX = \$60 853 + 35 581 - 10 624

OCF20XX = \$85 180

OCF20XX+1 = \$69 680 + 40 217 - 12 163

OCF20XX+1 = \$97 734

4 To calculate the cash flow from assets, we need to find the capital spending and change in net working capital. The capital spending for the year was:

Capital spending	
Ending non-current assets	\$191 250
- Beginning non-current assets	156 975
+ Depreciation	40 217
Net capital spending	\$74 492

And the change in net working capital was:

Change in net working capital

Ending NWC	\$29 010
– Beginning NWC	11 399
Change in NWC	\$17 611

So, the cash flow from assets was:

Cash flow from assets	
Operating cash flow	\$97 734
– Net capital spending	74 492
– Change in NWC	17 611
Cash flow from assets	\$ 5 631

5 The cash flow to creditors was:

Cash flow to creditors	
Interest paid	\$8 866
– Net new borrowing	11 960
Cash flow to creditors	-\$3 094

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6 The cash flow to equity holders was:

Cash flow to equity holdersDividends paid\$24 326- Net new equity raised15 600Cash flow to equity holders\$8 726

- 7 The company had positive earnings in an accounting sense (NI > 0) and had positive cash flow from operations. The business invested \$17 611 in new net working capital and \$74 492 in new non-current assets. The business gave \$5 631 to its stakeholders. It raised \$3 094 from bondholders and paid \$8 726 to equity holders.
- 8 The expansion plans may be a little risky. The company does have a positive cash flow, but a large portion of the operating cash flow is already going to capital spending. The company has had to raise capital from creditors and equity holders for its current operations. So, the expansion plans may be too aggressive at this time. On the other hand, companies do need capital to grow. Before investing in the company or lending it money, you would want to know where the current capital spending is going, and why the company is spending so much in this area already.