

CHAPTER 2: SOLUTIONS TO QUESTIONS AND PROBLEMS

<https://selldocx.com/products/solution-manual-fundamentals-of-corporate-finance-6e-christensen>

- 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.

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Burn Ltd

Balance Sheet

as at 30 June 20XX

<i>Assets</i>		<i>Liabilities and Equity</i>	
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 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

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

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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	<u>95</u>	<u>102</u>
EBIT	845	808
Tax	<u>254</u>	<u>242</u>
Profit after tax	591	566

b

OCF	20XX	20XX+1
EBIT	845	808
+ Depreciation	400	350
– Taxes	<u>254</u>	<u>242</u>
	991	916

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

- 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

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	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

8 Taxable income = $(30\% \times \$215\,000) - \1000 = \$63 500
 Tax bill = $30\% (\$63\,500 - \$37\,000) + \$4\,650$ = \$12 600
 Average tax rate = $\$12\,600 / \$63\,500$ = 19.84%
 Marginal tax rate = 30%

9 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					
<i>Assets</i>	<i>20XX</i>	<i>20XX+1</i>	<i>Liabilities</i>	<i>20XX</i>	<i>20XX+1</i>
Current assets	176	208	Current liabilities	98	116
Non-current assets	770	881	Non-current liabilities	569	576
			Owners' equity	279	397
Total assets	946	1089	Total liabilities & OE	946	1089

Foster Ltd Income Statement 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

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 = $1120 + 228 - 301 = \$1047$

$$\begin{aligned}
 \text{d Non-current assets sold} &= 500 + 770 - 881 - 228 = \$161 \\
 \text{Capital spending} &= 500 - 161 = \$339 \\
 \text{Cash flow from assets} &= 1047 - 339 - 14 = \$694
 \end{aligned}$$

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

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

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$$\begin{aligned}
 \text{Depreciation} &= \text{Beginning n/c assets} + \text{Investments} - \text{Ending n/c assets} \\
 &= \$357\,000 + \$275\,000 - \$443\,000 \\
 &= \$189\,000
 \end{aligned}$$

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$$\begin{aligned}
 \text{Market value} &= \$2.3 \times 7\text{m} = \$16.1\text{m} \\
 \text{Book value} &= \text{Net assets} = \$12.4\text{m}
 \end{aligned}$$

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.

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<p style="text-align: center;">Hugh Ltd Balance Sheets 30 June 20XX and 30 June 20XX+1</p>					
<i>Assets</i>	<i>20XX</i>	<i>20XX+1</i>	<i>Liabilities</i>	<i>20XX</i>	<i>20XX+1</i>
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

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

	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	160	129
Dividends	100	110

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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

		275 000
	Plant and equipment 20XX	177 000

	Depreciation 20XX	<u>\$98 000</u>

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Balance receivables 20XX–1	\$500 000
Credit sales 20XX	<u>680 000</u>
	1 180 000
Bad debts 20XX	<u>5 000</u>
	1 175 000
Balance receivables 20XX	<u>440 000</u>
Cash receipts	<u>\$735 000</u>

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- a 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.

- c 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.

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

<i>Olympic Records Ltd</i>					
<i>Balance Sheet</i>					
	<i>20XX</i>	<i>20XX-1</i>		<i>20XX</i>	<i>20XX-1</i>
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	<u>\$10 079</u>	<u>\$9 549</u>	Equity/Liabilities	<u>\$10 079</u>	<u>\$9 549</u>
	=====	=====		=====	=====
<i>Income Statement 20XX</i>					
Sales			\$4 507		
Cost of goods sold			2 633		
Depreciation			952		

Earnings before interest and tax			\$922		
Interest paid			196		

Taxable income			\$726		
Tax 30%			218		

Net income			<u>\$508</u>		
Dividends			\$250		
Addition to retained earnings			<u>\$258</u>		
<i>Operating Cash Flow 20XX</i>					

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

Operating cash flow	1 656
– net capital spending	1 258
– change in net working capital	(28) *

Cash from assets	<u>\$426</u>

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

Cash Flow to Creditors 20XX

Interest paid	\$196
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– 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.

<u>Cash Flow to Shareholders 20XX</u>		
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 .

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Active Company Pty Ltd

Income Statement

Sales	3 000 000
Cost of goods sold	900 000
Depreciation	<u>550 000</u>
EBIT	1 550 000
Interest expense	<u>650 000</u>
Profit before tax	900 000
Tax	<u>–270 000</u>
Profit after tax	630 000

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Income Statement

Sales	2 000 000
Cost of goods sold	600 000
Administration expenses	<u>200 000</u>
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

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$$\begin{aligned}
 \text{Operating cash flow} &= \text{EBIT} + \text{depreciation} - \text{taxes} \\
 &= 1\,550\,000 + 550\,000 - 270\,000 \\
 &= \$1\,830\,000
 \end{aligned}$$

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	<u>35 581</u>	<u>40 217</u>
EBIT	\$60 853	\$69 680
Interest	<u>7 735</u>	<u>8 866</u>
EBT	\$53 118	\$60 814
Taxes	<u>10 624</u>	<u>12 163</u>
Net profit	<u><u>\$42 494</u></u>	<u><u>\$48 651</u></u>
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	<u>14 651</u>
Inventory	<u>27 119</u>	Current liabilities	\$46 794
Current assets	\$58 193		
		Long-term debt	\$79 235
Non-current assets	<u>\$156 975</u>	Owners' equity	<u>89 139</u>
		Total liabilities &	
Total assets	<u><u>\$215 168</u></u>	equity	<u><u>\$215 168</u></u>

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:

$$\text{Equity} = \$215\,168 - 46\,794 - 79\,235$$

$$\text{Equity} = \$89\,139$$

Balance sheet as of 30 June 20XX+1

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

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

$$\text{Equity} = \$89\,139 + 24\,326 + 15\,600$$

$$\text{Equity} = \$129\,065$$

3 Using the OCF equation:

$$\text{OCF} = \text{EBIT} + \text{Depreciation} - \text{Taxes}$$

The OCF for each year is:

$$\text{OCF}_{20\text{XX}} = \$60\,853 + 35\,581 - 10\,624$$

$$\text{OCF}_{20\text{XX}} = \$85\,810$$

$$\text{OCF}_{20\text{XX}+1} = \$69\,680 + 40\,217 - 12\,163$$

$$\text{OCF}_{20\text{XX}+1} = \$97\,734$$

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	<u>40 217</u>
Net capital spending	\$74 492

And the change in net working capital was:

Change in net working capital	
Ending NWC	\$29 010
– Beginning NWC	<u>11 399</u>
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	<u>17 611</u>
Cash flow from assets	\$ 5 631

5 The cash flow to creditors was:

Cash flow to creditors	
Interest paid	\$8 866
– Net new borrowing	<u>11 960</u>
Cash flow to creditors	–\$3 094

- 6 The cash flow to equity holders was:

Cash flow to equity holders

Dividends paid	\$24 326
– Net new equity raised	<u>15 600</u>
Cash 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.