

***Corporate Finance (Canadian) 9th edition Ross
Solutions Manual***

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Chapter 2: Accounting Statements and Cash Flow

Questions and Problems:

2.1. To find shareholders' equity, we must construct a balance sheet as follows:

<u>Balance Sheet</u>			
Current assets	\$5,300	Current liabilities	\$3,900
Net fixed assets	<u>26,000</u>	Long-term debt	14,200
		Shareholders' equity	<u>..??....</u>
Total assets	<u>\$31,300</u>	Total liabilities & equity	<u>\$31,300</u>

We know that total liabilities and shareholders' equity must equal total assets of \$31,300. We also know that total liabilities & shareholders' equity is equal to current liabilities plus long-term debt plus shareholders' equity, so shareholders' equity is:

$$\text{Shareholders' equity} = \$31,300 - \$14,200 - \$3,900 = \$13,200$$

$$\text{Net Working Capital} = \text{Current Assets} - \text{Current Liabilities} = \$5,300 - \$3,900 = \$1,400$$

2.2 The income statement for the company is:

<u>Income Statement</u>	
Sales	\$493,000
Costs	210,000
Depreciation	<u>35,000</u>
EBIT	\$248,000
Interest	<u>19,000</u>
EBT	\$229,000
Taxes	<u>80,150</u>
Net income	<u>\$148,850</u>

One equation for net income is:

$$\text{Net income} = \text{Dividends} + \text{Addition to retained earnings}$$

Rearranging, we get:

$$\text{Addition to retained earnings} = \text{Net income} - \text{Dividends}$$

$$\text{Addition to retained earnings} = \$148,850 - \$50,000$$

$$\text{Addition to retained earnings} = \$98,850$$

2.3 To find the book value of current assets, we use:

$$\text{Net Working Capital} = \text{Current Assets} - \text{Current Liabilities.}$$

Rearranging to solve for current assets, we get:

$$\text{Current Assets} = \text{Net Working Capital} + \text{Current Liabilities}$$

$$\text{Current Assets} = \$800,000 + \$2,100,000 = \$2,900,000$$

The market value of current assets and net fixed assets is given, so:

Book value Current Assets	= \$2,900,000	Market value Current Assets	= \$2,800,000
Book value Net Fixed Assets	= <u>\$5,000,000</u>	Market value Net Fixed Assets	= <u>\$6,300,000</u>
Book value assets	= \$7,900,000	Market value assets	= \$9,100,000

2.4 To calculate Operating cash flow, we first need the income statement:

<u>Income Statement</u>	
Sales	\$18,700
Costs	10,300
Depreciation	<u>1,900</u>
EBIT	\$6,500
Interest	<u>1,250</u>
Taxable income	\$5,250
Taxes	<u>2,100</u>
Net income	<u>\$3,150</u>

Operating cash flow = EBIT + Depreciation – Taxes

Operating cash flow = \$6,500 + \$1,900 – \$2,100

Operating cash flow = \$6,300

2.5 Net capital spending = Net Fixed Assets_{end} – Net Fixed Assets_{beg} + Depreciation

Net capital spending = \$1,730,000 – \$1,650,000 + \$284,000

Net capital spending = \$364,000

2.6 The long-term debt account will increase by \$35 million, the amount of the new long-term debt issue. Since the company sold 10 million new shares of stock with a \$1 par value, the common stock account will increase by \$10 million. The capital surplus account will increase by \$48 million, the value of the new common shares sold above its par value. Since the company had a net income of \$9 million, and paid \$2 million in dividends, the addition to retained earnings was \$7 million, which will increase the accumulated retained earnings account. So, the new long-term debt and stockholders' equity portion of the balance sheet will be:

Long-term debt	<u>\$ 100,000,000</u>
Total long-term debt	\$100,000,000
Shareholders equity	
Preferred shares	\$ 4,000,000
Common shares (\$1 par value)	25,000,000
Accumulated retained earnings	142,000,000
Capital surplus	<u>93,000,000</u>
Total equity	\$264,000,000
Total Liabilities & Equity	\$ 364,000,000

2.7 Cash flow to creditors = Interest paid – Net new borrowing

$$\text{Cash flow to creditors} = \$127,000 - (\text{Long-term debt}_{\text{end}} - \text{Long-term debt}_{\text{beg}})$$

$$\text{Cash flow to creditors} = \$127,000 - (\$1,520,000 - \$1,450,000)$$

$$\text{Cash flow to creditors} = \$127,000 - \$70,000$$

$$\text{Cash flow to creditors} = \$57,000$$

2.8 Cash flow to stockholders = Dividends paid – Net new equity

$$\text{Cash flow to stockholders} = \$275,000 - [(\text{Common}_{\text{end}} + \text{APIS}_{\text{end}}) - (\text{Common}_{\text{beg}} + \text{APIS}_{\text{beg}})]$$

$$\text{Cash flow to stockholders} = \$275,000 - [(\$25,000 + \$3,700,000) - (\$490,000 + \$3,400,000)]$$

$$\text{Cash flow to stockholders} = \$275,000 - (\$4,225,000 - \$3,890,000)$$

$$\text{Cash flow to stockholders} = -\$60,000$$

Note, APIS is the additional paid-in surplus.

2.9 Cash flow from assets = Cash flow to creditors + Cash flow to stockholders

$$= \$57,000 - \$60,000$$

$$= -\$3,000$$

$$\text{Cash flow from assets} = \text{Operating cash flow} - \text{Change in Net Working Capital}$$

$$- \text{Net capital spending}$$

$$-\$3,000 = \text{Operating cash flow} - (-\$87,000) - \$945,000$$

$$\text{Operating cash flow} = -\$3,000 - \$87,000 + \$945,000$$

$$\text{Operating cash flow} = \$855,000$$

2.10 a. The accounting statement of cash flows explains the change in cash during the year. The accounting statement of cash flows will be:

Statement of cash flows

Operations

Net income	\$95
Depreciation	90
Changes in other current assets	(5)
Accounts payable	<u>10</u>
Total cash flow from operations	<u>\$190</u>

Investing activities

Acquisition of fixed assets	<u>\$(110)</u>
Total cash flow from investing activities	<u>\$(110)</u>

Financing activities

Proceeds of long-term debt	\$5
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Dividends	<u>(75)</u>
Total cash flow from financing activities	<u>\$(70)</u>
Change in cash (on balance sheet)	<u>\$10</u>

- b. Change in NWC = $NWC_{\text{end}} - NWC_{\text{beg}}$
 $= (CA_{\text{end}} - CL_{\text{end}}) - (CA_{\text{beg}} - CL_{\text{beg}})$
 $= [(\$65 + \$170) - \$125] - [(\$55 + \$165) - \$115]$
 $= \$110 - \105
 $= \$5$
- c. To find the cash flow generated by the firm's assets, we need the operating cash flow, and the capital spending. So, calculating each of these, we find:

Operating cash flow

Net income	\$95
Depreciation	<u>90</u>
Operating cash flow	\$185

Note that we can calculate operating cash flow in this manner since there are no taxes.

Capital spending

Ending fixed assets	\$390
Beginning fixed assets	(370)
Depreciation	<u>90</u>
Capital spending	\$110

Now we can calculate the cash flow generated by the firm's assets, which is:

Cash flow from assets

Operating cash flow	\$185
Capital spending	(110)
Change in NWC	<u>(5)</u>
Cash flow from assets	\$70

2.11 Operating cash flow = EBIT + Depreciation – Current Taxes

$$\text{Operating cash flow} = \$40,000 + \$10,000 - \$6,000$$

$$\text{Operating cash flow} = \$44,000$$

$$\text{Capital spending} = \$21,000$$

$$\text{Change in NWC} = \$1,900$$

$$\begin{aligned}\text{Cash flow from assets} &= \text{Operating cash flow} - \text{Capital spending} - \text{Change in NWC} \\ &= \$44,000 - \$21,000 - \$1,900 = \$21,100\end{aligned}$$

$$\text{Cash flow to creditors} = \text{Interest expense} + \text{debt repayment} = \$2,000 + \$8,600 = \$10,600$$

$$\text{Cash flow to shareholders} = \text{Dividends} - \text{shares sold} = \$14,500 - \$4,000 = \$10,500$$

Check whether the cash flow identity holds:

$$\text{Cash flow to creditors} + \text{Cash flow to shareholders} = \$10,600 + \$10,500 = \$21,100, \text{ which is equal to } \text{Cash flow from assets}$$

- 2.12 a.** The interest expense for the company is the amount of debt times the interest rate on the debt. So, the income statement for the company is:

<u>Income Statement</u>	
Sales	\$1,200,000
Cost of goods sold	450,000
Selling costs	225,000
Depreciation	<u>110,000</u>
EBIT	\$415,000
Interest	<u>81,000</u>
Taxable income	\$334,000
Taxes	<u>116,900</u>
Net income	<u>\$217,100</u>

- b.** And the operating cash flow is:

$$\begin{aligned}\text{Operating cash flow} &= \text{EBIT} + \text{Depreciation} - \text{Taxes} \\ \text{Operating cash flow} &= \$415,000 + \$110,000 - \$116,900 \\ \text{Operating cash flow} &= \$408,100\end{aligned}$$

- 2.13** To find the operating cash flow, we first calculate net income.

<u>Income Statement</u>	
Sales	\$167,000
Costs	91,000
Depreciation	8,000
Other expenses	<u>5,400</u>
EBIT	\$62,600
Interest	<u>11,000</u>
Taxable income	\$51,600
Taxes	<u>18,060</u>
Net income	<u>\$33,540</u>
Dividends	\$9,500

Additions to RE \$24,040

- a. Operating cash flow = EBIT + Depreciation – Taxes
 Operating cash flow = \$62,600 + \$8,000 – \$18,060
 Operating cash flow = \$52,540
- b. Cash flow to Creditors = Interest – Net new long-term debt
 Cash flow to Creditors = \$11,000 – (–\$7,100)
 Cash flow to Creditors = \$18,100

Note that the net new long-term debt is negative because the company repaid part of its long-term debt.

- c. Cash flow to stockholders = Dividends – Net new equity
 Cash flow to stockholders = \$9,500 – \$7,250
 Cash flow to stockholders = \$2,250
- d. We know that Cash flow from assets = Cash flow to creditors + Cash flow to stockholders, so:

$$\text{Cash flow from assets} = \$18,100 + \$2,250 = \$20,350$$

Cash flow from assets is also equal to Operating cash flow – Net capital spending – Change in NWC.

We already know operating cash flow. Net capital spending is equal to:

$$\begin{aligned}\text{Net capital spending} &= \text{Increase in Net fixed assets} + \text{Depreciation} \\ \text{Net capital spending} &= \$22,400 + \$8,000 \\ \text{Net capital spending} &= \$30,400\end{aligned}$$

Now we can use:

$$\begin{aligned}\text{Cash flow from assets} &= \text{Operating cash flow} - \text{Net capital spending} - \text{Change in NWC} \\ \$20,350 &= \$52,540 - \$30,400 - \text{Change in NWC}.\end{aligned}$$

Solving for the change in NWC gives \$1,790, meaning the company increased its NWC by \$1,790.

2.14 The solution to this question works the income statement backwards. Starting at the bottom:

$$\begin{aligned}\text{Net income} &= \text{Dividends} + \text{Addition to retained earnings} \\ \text{Net income} &= \$1,570 + \$4,900 \\ \text{Net income} &= \$6,470\end{aligned}$$

Now, looking at the income statement:

$$EBT - (EBT \times \text{Tax rate}) = \text{Net income}$$

Recognize that $EBT \times \text{tax rate}$ is simply the calculation for taxes. Solving this for EBT yields:

$$EBT = NI / (1 - \text{Tax rate})$$

$$EBT = \$6,470 / (1 - 0.35)$$

$$EBT = \$9,953.85$$

Now we can calculate:

$$EBIT = EBT + \text{Interest}$$

$$EBIT = \$9,953.85 + \$1,840$$

$$EBIT = \$11,793.85$$

The last step is to use:

$$EBIT = \text{Sales} - \text{Costs} - \text{Depreciation}$$

$$\$11,793.85 = \$41,000 - \$26,400 - \text{Depreciation}$$

$$\text{Depreciation} = \$2,806.15$$

2.15 The balance sheet for the company looks like this:

<u>Balance Sheet</u>			
Cash	\$274,500	Accounts payable	\$697,500
Accounts receivable	207,000	Notes payable	<u>217,500</u>
Inventory	<u>445,500</u>	Current liabilities	\$915,000
Current assets	\$927,000	Long-term debt	<u>2,325,000</u>
		Total liabilities	\$3,240,000
Tangible net fixed assets	4,393,000		
Intangible net fixed assets	<u>860,000</u>	Common shares	??
		Accumulated ret. earnings	<u>2,940,000</u>
Total assets	<u>\$6,180,000</u>	Total liabilities. & equity	<u>\$6,180,000</u>

Total liabilities and equity is:

$$\text{Total liabilities \& equity} = \text{Total debt} + \text{Common shares} + \text{Accumulated retained earnings}$$

Solving for this equation for equity gives us:

$$\text{Common shares} = \$6,180,000 - \$3,240,000 - \$2,940,000$$

$$\text{Common shares} = \$0$$

2.16 a. The market value of shareholders' equity can be stated as: Shareholders' equity = $\text{Max}[(\text{Total assets} - \text{Total liabilities}), 0]$. So, if Total assets are \$12,400 and Total liabilities are \$10,900, equity is equal to \$1,500

- b. The market value of shareholders' equity cannot be negative. A negative market value in this case would imply that the company would pay you to own the stock. Therefore, if Total assets are \$9,600, equity is equal to \$0. We should note here that while the market value of equity cannot be negative, the book value of shareholders' equity can be negative.

2.17 a.

<u>Income Statement</u>	
Sales	\$630,000
COGS	470,000
A&S expenses	95,000
Depreciation	<u>140,000</u>
EBIT	\$(75,000)
Interest	<u>70,000</u>
Taxable income	\$(145,000)
Taxes (35%)	<u>0</u>
Net income	<u>\$(145,000)</u>

- b. $OCF = EBIT + Depreciation - Taxes$
 $OCF = $(75,000) + $140,000 - 0$
 $OCF = $65,000$
- 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.

2.18 A firm can still pay out dividends if net income is negative; it just has to be sure there is sufficient cash flow to make the dividend payments.

Change in NWC = Net capital spending = Net new equity = 0 (Given)

Cash flow from assets = $OCF - \text{Change in NWC} - \text{Net capital spending}$

Cash flow from assets = $$65,000 - 0 - 0 = \$65,000$

Cash flow to stockholders = $\text{Dividends} - \text{Net new equity}$

Cash flow to stockholders = $\$34,000 - 0 = \$34,000$

Cash flow to creditors = $\text{Cash flow from assets} - \text{Cash flow to stockholders}$

Cash flow to creditors = $\$65,000 - \$34,000$

Cash flow to creditors = $\$31,000$

Cash flow to creditors is also:

Cash flow to creditors = $\text{Interest} - \text{Net new LTD}$

So:

Net new LTD = Interest – Cash flow to creditors

Net new LTD = \$70,000 – \$31,000

Net new LTD = \$39,000

2.19 a. The income statement is:

<u>Income Statement</u>	
Sales	\$19,900
Cost of good sold	14,200
Depreciation	<u>2,700</u>
EBIT	\$3,000
Interest	<u>670</u>
Taxable income	\$2,330
Taxes	<u>932</u>
Net income	<u>\$1,398</u>

b. $OCF = EBIT + Depreciation - Taxes$

$OCF = \$3,000 + \$2,700 - \$932$

$OCF = \$4,768$

c. $Change\ in\ NWC = NWC_{end} - NWC_{beg}$
 $= (CA_{end} - CL_{end}) - (CA_{beg} - CL_{beg})$
 $= (\$5,135 - \$2,535) - (\$4,420 - \$2,470)$
 $= \$2,600 - 1,950$
 $= \$650$

$Net\ capital\ spending = NFA_{end} - NFA_{beg} + Depreciation$
 $= \$16,770 - \$15,340 + \$2,700$
 $= \$4,130$

$CFA = OCF - Change\ in\ NWC - Net\ capital\ spending$
 $= \$4,768 - \$650 - \$4,130$
 $= -\$12$

The cash flow from assets can be positive or negative, since it represents whether the firm raised funds or distributed funds on a net basis. In this problem, even though net income and OCF are positive, the firm invested heavily in both fixed assets and net working capital; it had to raise a net \$12 in funds from its stockholders and creditors to make these investments.

d. Cash flow to creditors = Interest – Net new LTD
 $= \$670 - 0$
 $= \$670$

$$\begin{aligned}
\text{Cash flow to stockholders} &= \text{Cash flow from assets} - \text{Cash flow to creditors} \\
&= -\$12 - \$670 \\
&= -\$682
\end{aligned}$$

We can also calculate the cash flow to stockholders as:

$$\text{Cash flow to stockholders} = \text{Dividends} - \text{Net new equity}$$

Solving for net new equity, we get:

$$\begin{aligned}
\text{Net new equity} &= \$650 - (-\$682) \\
&= \$1,332
\end{aligned}$$

The firm had positive earnings in an accounting sense ($NI > 0$) and had positive cash flow from operations. The firm invested \$650 in new net working capital and \$4,130 in new fixed assets. The firm had to raise \$12 from its stakeholders to support this new investment. It accomplished this by raising \$1,332 in the form of new equity. After paying out \$650 of this in the form of dividends to shareholders and \$670 in the form of interest to creditors, \$12 was left to meet the firm's cash flow needs for investment.

$$\begin{aligned}
2.20a. \quad \text{Total assets 2017} &= \$936 + \$4,176 = \$5,112 \\
\text{Total liabilities 2017} &= \$382 + \$2,160 = \$2,542 \\
\text{Owners' equity 2017} &= \$5,112 - \$2,542 = \$2,570
\end{aligned}$$

$$\begin{aligned}
\text{Total assets 2018} &= \$1,015 + \$4,896 = \$5,911 \\
\text{Total liabilities 2018} &= \$416 + \$2,477 = \$2,893 \\
\text{Owners' equity 2018} &= \$5,911 - \$2,893 = \$3,018
\end{aligned}$$

$$\begin{aligned}
b. \quad \text{NWC 2017} &= \text{CA17} - \text{CL17} = \$936 - \$382 = \$554 \\
\text{NWC 2018} &= \text{CA18} - \text{CL18} = \$1,015 - \$416 = \$599 \\
\text{Change in NWC} &= \text{NWC18} - \text{NWC17} = \$599 - \$554 = \$45
\end{aligned}$$

c. We can calculate net capital spending as:

$$\begin{aligned}
\text{Net capital spending} &= \text{Net fixed assets 2018} - \text{Net fixed assets 2017} + \text{Depreciation} \\
\text{Net capital spending} &= \$4,896 - \$4,176 + \$1,150 \\
\text{Net capital spending} &= \$1,870
\end{aligned}$$

So, the company had a net capital spending cash flow of \$1,870. We also know that net capital spending is:

$$\begin{aligned}
\text{Net capital spending} &= \text{Fixed assets bought} - \text{Fixed assets sold} \\
\$1,870 &= \$2,160 - \text{Fixed assets sold} \\
\text{Fixed assets sold} &= \$2,160 - \$1,870 \\
\text{Fixed assets sold} &= \$290
\end{aligned}$$

To calculate the cash flow from assets, we must first calculate the operating cash flow. The operating cash flow is calculated as follows (you can also prepare a traditional income statement):

$$\begin{aligned}\text{EBIT} &= \text{Sales} - \text{Costs} - \text{Depreciation} \\ \text{EBIT} &= \$12,380 - \$5,776 - \$1,150 \\ \text{EBIT} &= \$5,454\end{aligned}$$

$$\begin{aligned}\text{EBT} &= \text{EBIT} - \text{Interest} \\ \text{EBT} &= \$5,454 - \$314 \\ \text{EBT} &= \$5,140\end{aligned}$$

$$\begin{aligned}\text{Taxes} &= \text{EBT} \times 0.40 \\ \text{Taxes} &= \$5,140 \times 0.40 \\ \text{Taxes} &= \$2,056\end{aligned}$$

$$\begin{aligned}\text{OCF} &= \text{EBIT} + \text{Depreciation} - \text{Taxes} \\ \text{OCF} &= \$5,454 + \$1,150 - \$2,056 \\ \text{OCF} &= \$4,548\end{aligned}$$

$$\begin{aligned}\text{Cash flow from assets} &= \text{OCF} - \text{Change in NWC} - \text{Net capital spending.} \\ \text{Cash flow from assets} &= \$4,548 - \$45 - \$1,870 \\ \text{Cash flow from assets} &= \$2,633\end{aligned}$$

d. $\begin{aligned}\text{Net new borrowing} &= \text{LTD}_{18} - \text{LTD}_{17} \\ \text{Net new borrowing} &= \$2,477 - \$2,160 \\ \text{Net new borrowing} &= \$317\end{aligned}$

$$\begin{aligned}\text{Cash flow to creditors} &= \text{Interest} - \text{Net new LTD} \\ \text{Cash flow to creditors} &= \$314 - \$317 \\ \text{Cash flow to creditors} &= -\$3\end{aligned}$$

$$\begin{aligned}\text{Net new borrowing} &= \$317 = \text{Debt issued} - \text{Debt retired} \\ \text{Debt retired} &= \$432 - \$317 \\ \text{Debt retired} &= \$115\end{aligned}$$

2.21

<u>Statement of Financial Position as of Dec. 31, 2017</u>			
Cash	\$4,109	Accounts payable	\$4,316
Accounts receivable	5,439	Notes payable	794
Inventory	<u>9,670</u>	Current liabilities	<u>\$5,110</u>
Current assets	\$19,218		
		Long-term debt	\$13,460
Net fixed assets	<u>\$34,455</u>	Owners' equity	<u>35,103</u>
Total assets	<u><u>\$53,673</u></u>	Total liab. & equity	<u><u>\$53,673</u></u>

Statement of Financial Position as of Dec. 31, 2018

Cash	\$5,203	Accounts payable	\$4,185
Accounts receivable	6,127	Notes payable	746
Inventory	9,938	Current liabilities	\$4,931
Current assets	\$21,268		
		Long-term debt	\$16,050
Net fixed assets	\$35,277	Owners' equity	35,564
		Total liab. & equity	\$56,545
Total assets	\$56,545		

2017 Income Statement

Sales	\$7,835.00
COGS	2,696.00
Other expenses	639.00
Depreciation	1,125.00
EBIT	\$3,375.00
Interest	525.00
EBT	\$2,850.00
Taxes	969.00
Net income	\$1,881.00

Dividends	\$956.00
Additions to RE	\$925.00

2018 Income Statement

Sales	\$8,409.00
COGS	3,060.00
Other expenses	534.00
Depreciation	1,126.00
EBIT	\$3,689.00
Interest	603.00
EBT	\$3,086.00
Taxes	1,049.24
Net income	\$2,036.76

Dividends	\$1,051.00
Additions to RE	\$985.76

2.22 $OCF = EBIT + Depreciation - Taxes$

$$OCF = \$3,689 + \$1,126 - \$1,049.24$$

$$OCF = \$3,765.76$$

$$\text{Change in NWC} = NWC_{\text{end}} - NWC_{\text{beg}} = (CA - CL)_{\text{end}} - (CA - CL)_{\text{beg}}$$

$$\text{Change in NWC} = (\$21,268 - \$4,931) - (\$19,218 - \$5,110)$$

$$\text{Change in NWC} = \$2,229$$

$$\text{Net capital spending} = NFA_{\text{end}} - NFA_{\text{beg}} + \text{Depreciation}$$

$$\text{Net capital spending} = \$35,277 - \$34,455 + \$1,126$$

$$\text{Net capital spending} = \$1,948$$

$$\text{Cash flow from assets} = OCF - \text{Change in NWC} - \text{Net capital spending}$$

$$\text{Cash flow from assets} = \$3,765.76 - \$2,229 - \$1,948$$

$$\text{Cash flow from assets} = -\$411.24$$

Cash flow to creditors = Interest – Net new LTD
 Net new LTD = $LTD_{end} - LTD_{beg}$
 Cash flow to creditors = $\$603 - (\$16,050 - \$13,460)$
 Cash flow to creditors = $-\$1,987$

Net new equity = $Common\ shares_{end} - Common\ shares_{beg}$
 Common shares + Retained earnings = Total owners' equity
 Net new equity = $(OE - RE)_{end} - (OE - RE)_{beg}$
 Net new equity = $OE_{end} - OE_{beg} + RE_{beg} - RE_{end}$
 $RE_{end} = RE_{beg} + Additions\ to\ RE$
 $\therefore$ Net new equity = $OE_{end} - OE_{beg} + RE_{beg} - (RE_{beg} + Additions\ to\ RE)$
 $= OE_{end} - OE_{beg} - Additions\ to\ RE$
 Net new equity = $\$35,564 - \$35,103 - \$985.76 = -\524.76

Cash flow to stockholders = Dividends – Net new equity
 Cash flow to stockholders = $\$1,051 - (-\$524.76)$
 Cash flow to stockholders = $\$1,575.76$

As a check, cash flow from assets is $-\$411.24$

Cash flow from assets = Cash flow from creditors + Cash flow to stockholders
 Cash flow from assets = $-\$1,987 + \$1,575.76$
 Cash flow from assets = $-\$411.24$

Challenge

2.23 We will begin by calculating the operating cash flow. First, we need the EBIT, which can be calculated as:

EBIT = Net income + Current taxes + Deferred taxes + Interest
 EBIT = $\$173 + \$98 + \$19 + \48
 EBIT = $\$338$

Now we can calculate the operating cash flow as:

Operating cash flow

Earnings before interest and taxes	\$338
Depreciation	94
Current taxes	<u>(98)</u>
Operating cash flow	\$334

The cash flow from assets is found in the investing activities portion of the accounting statement of cash flows, so:

Cash flow from assets

Acquisition of fixed assets	\$215
Sale of fixed assets	<u>(23)</u>
Capital spending	\$192

The net working capital cash flows are all found in the operations cash flow section of the accounting statement of cash flows. However, instead of calculating the net working capital cash flows as the change in net working capital, we must calculate each item individually. Doing so, we find:

Net working capital cash flow

Cash	\$14
Accounts receivable	18
Inventories	(22)
Accounts payable	(17)
Accrued expenses	9
Notes payable	(6)
Other	<u>(3)</u>
NWC cash flow	\$(7)

Except for the interest expense, the cash flow to creditors is found in the financing activities of the accounting statement of cash flows. The interest expense from the income statement is given, so:

Cash flow to creditors

Interest	\$48
Retirement of debt	<u>162</u>
Debt service	\$210
Proceeds from sale of long-term debt	<u>(116)</u>
Total	\$94

And we can find the cash flow to stockholders in the financing section of the accounting statement of cash flows. The cash flow to stockholders was:

Cash flow to stockholders

Dividends	\$ 86
Repurchase of shares	<u>13</u>
Cash to stockholders	\$ 99
Proceeds from new shares issue	<u>(44)</u>
Total	\$ 55

$$\begin{aligned}
2.24 \text{ Net capital spending} &= \text{NFA}_{\text{end}} - \text{NFA}_{\text{beg}} + \text{Depreciation} \\
&= (\text{NFA}_{\text{end}} - \text{NFA}_{\text{beg}}) + (\text{Depreciation} + \text{AD}_{\text{beg}}) - \text{AD}_{\text{beg}} \\
&= (\text{NFA}_{\text{end}} - \text{NFA}_{\text{beg}}) + \text{AD}_{\text{end}} - \text{AD}_{\text{beg}} \\
&= (\text{NFA}_{\text{end}} + \text{AD}_{\text{end}}) - (\text{NFA}_{\text{beg}} + \text{AD}_{\text{beg}}) = \text{FA}_{\text{end}} - \text{FA}_{\text{beg}}
\end{aligned}$$

MINICASE: Cash Flows at Eshopwise Ltd.

The operating cash flow for the company is: (NOTE: All numbers are in thousands of dollars)

Operating cash flow

EBIT	\$1,568
+Depreciation	221
–Current taxes	535
=Operating cash flow	<u>\$1,254</u>

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 total fixed assets	\$1,770
– Beginning total fixed assets	1,151
+ Depreciation	221
=Net capital spending	<u>\$840</u>

And the change in net working capital was:

Change in net working capital

Ending NWC	572
– Beginning NWC	482
=Change in NWC	<u>90</u>

So, the cash flow from assets was:

Cash flow from assets

Operating cash flow	\$1,254
– Net capital spending	840
– Change in NWC	90
=Cash flow from assets	<u>\$324</u>

The cash flow to creditors was:

Cash flow to creditors

Interest paid	\$55
– Net New Borrowing	24
=Cash flow to Creditors	<u>\$31</u>

The cash flow to stockholders was:

Cash flow to stockholders

Dividends paid	\$251
– Net new equity raised	– 42
=Cash flow to Stockholders	<u>\$293</u>

Cash flow parity

Cash flow to Creditors	\$31	
+Cash flow to Stockholders	<u>293</u>	
=Cash flow from assets	\$324	As before

The accounting cash flow statement of cash flows for the year was:

Statement of Cash Flows

Operations

Net income	\$908
Depreciation	221
Deferred taxes	70
Changes in assets and liabilities	
Accounts receivable	– 47
Inventories	17
Accounts payable	120
Accrued expenses	– 57
Other	– 5
Total cash flow from operations	<u>\$1,227</u>

Investing activities

Acquisition of fixed assets	– \$1,140
Sale of fixed assets	<u>300</u>
Total cash flow from investing activities	<u>– \$840</u>

Financing activities

Retirement of debt	–	\$151
Proceeds of long-term debt		175
Notes payable		23
Dividends	–	251
Repurchase of shares	–	54
Proceeds from new shares issues		12
Total cash flow from financing activities	–	\$246
 Change in cash (on balance sheet)		 \$141

Answers to questions

1. The firm had positive earnings in an accounting sense ($NI > 0$) and had positive cash flow from operations and a positive cash flow from assets. The firm invested \$90 in new net working capital and \$840 in new fixed assets. The firm was able to return \$293 to its stockholders and \$31 to creditors.
2. The financial cash flows present a more accurate picture of the company since it accurately reflects interest cash flows as a financing decision rather than an operating decision.
3. The expansion plans look like they are probably a good idea. The company was able to return a significant amount of cash to its shareholders during the year, but a better use of these cash flows may have been to retain them for the expansion. This decision will be discussed in more detail later in the book.

Appendix 2A: Financial Statement Analysis

Questions and Problems:

- 2.A1
- | | | |
|----|----------------------|--|
| a. | No change | Both inventory and cash are current assets. |
| b. | Increase | Both current assets (cash) and current liabilities (account payable) would be reduced by the same amount but the current ratio increases. |
| c. | Increase or Decrease | If the bank loan is a current liability then both the current assets and current liabilities will be reduced by the same amount but the current ratio increases. However, if the bank loan is long-term debt then the current ratio would decrease because of the reduction in current assets. |
| d. | Decrease | Current assets are reduced to pay the long-term debt. |
| e. | No change | Accounts receivable and cash are current assets. |
| f. | No change | Inventory, cash and accounts receivable are current assets. |

2.A2 $ROA = \text{Profit margin} \times \text{Asset turnover}$
 $= 0.07 \times 1.8$
 $= 0.126 \text{ or } 12.6\%$

Total Debt ratio (TDR) = Total Debt / Total Assets = TD / TA = 0.72

Equity multiplier = Total Assets / Total Equity = TA / TE
 $= TA / (TA - TD) = TA / (TA - TA \times \text{TD Ratio})$
 $= 1 / (1 - \text{TD Ratio})$
 $= 1 / (1 - 0.72) = 3.57$

ROE = Profit margin $\times$ Asset turnover $\times$ Equity multiplier
 $= 0.07 \times 1.8 \times 3.57$
 $= 0.4498 \text{ or } 44.98\%$

2.A3 Receivables turnover $= 17,465 / 3,210 = 5.44 \text{ times}$
 Average Collection Period $= 365 / 5.44 = 67.09 \text{ days}$
 Payables turnover $= 12,216 / 2,230 = 5.48 \text{ times}$
 Average payment period $= 365 / 5.47 = 66.63 \text{ days}$

It takes PVI an average of 67.08 days to collect on credit sales and an average of 66.63 days to pay its creditors.

2.A4 Short-term Solvency Ratios

Current ratio for 2017 $= (800 + 1,950 + 3,135) / (1,550 + 1,629 + 746) = 1.50$
Current ratio for 2018 $= (1,800 + 2,040 + 2,300) / (1,630 + 1,380 + 625) = 1.69$
Quick ratio for 2017 $= (800 + 1,950) / (1,550 + 1,629 + 746) = 0.70$

Quick ratio for 2018 = $(1800 + 2040) / (1,630 + 1,380 + 625) = 1.06$
 Cash ratio for 2017 = $800 / (1,550 + 1,629 + 746) = 0.20$
 Cash ratio for 2018 = $1800 / (1,630 + 1,380 + 625) = 0.50$

Asset Management Ratios 2018

Total asset turnover = $4,500 / 10,887.5 = 0.41$
 Inventory turnover (using average) = $2,400 / 2,717.5 = 0.88$
 Receivables turnover (using average) = $4,500 / 1,995 = 2.26$

Long-term Solvency Ratios

Debt ratio for 2017 = $(10,505 - 570 - 2,523) / 10,505 = 0.71$
 Debt ratio for 2018 = $(11,270 - 1,146 - 2,709) / 11,270 = 0.66$
 Debt/equity ratio for 2017 = $7,412 / 3,093 = 2.40$
 Debt/equity ratio for 2018 = $7,415 / 3,855 = 1.92$
 Equity multiplier for 2017 = $2.40 + 1 = 3.40$
 Equity multiplier for 2018 = $1.92 + 1 = 2.92$
 Interest Coverage ratio = $1,600 / 480 = 3.33$
 Cash coverage ratio = $(1,600 + 500) / 480 = 4.38$

Profitability Ratios 2018

Profit margin = $740 / 4,500 = 0.1644$
 ROA (net) = $740 / 10,887.5 = 0.068$
 Average equity = $(3,093 + 3,855) / 2 = \$3,474$
 ROE = $740 / 3,474 = 0.213$

2.A5

Stowe Enterprises Statement of Cash Flows For Period Ending December 31, 2018	
Cash, beginning of the year	\$800.00
Operating activities	
Net Income	740
Plus:	
Depreciation	500
Increase in accounts payable	80
Decrease in inventory	835.00
Less:	
Increase in accounts receivable	(90.00)
Decrease in other current liabilities	(121)
Net cash from operating activities	\$1,944.00
Investment activities	

Fixed asset acquisition	<u>(1,010.00)</u>
Net cash from investment activities	\$(1,010.00)

Financing activities	
Decrease in notes payable	(249)
Dividends paid	(554)
Increase in long-term debt	293
Increase in common stock	<u>576</u>
Net cash from financing activities	66

Net increase in cash	<u>\$1,000.00</u>
Cash, end of year	<u>\$1,800.00</u>

2.A6 Average daily operating costs = $\$2400/365 = \6.58

Interval measure = current assets / average daily operating costs = $\$6140/6.58 = 933.79$ days

Stowe could operate for 933.79 days or approximately 2.56 years

2.A7 EPS = $\$740/80 = \9.25
P/E = $\$45/9.25 = 4.86$ times

Book value per share = $\$3,855/80 = \48.1875

Market-to-book ratio = $\$45/48.1875 = 0.9339$ times

2.A8 Each student answer will be different depending on the industry and firm selected.
The student should look at the financial position of the firm in relation to the industry as well as the trend, over time, in each of the five main categories of ratios. An overall statement on the financial position and recommendations should be encouraged.