Chapter 2: Accounting Statements and Cash Flow

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

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

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:

Shareholders' equity = $31,300 –$14,200 – $3,900 = $13,200

Net Working Capital = Current Assets – Current Liabilities = $5,300 – $3,900 = $1,400

2.2 The income statement for the company is:

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

One equation for net income is:
Net income = Dividends + Addition to retained earnings

Rearranging, we get:
Addition to retained earnings = Net income –
Dividends Addition to retained earnings = $148,850 –
$50,000 Addition to retained earnings = $98,850

2.3 To find the book value of current assets, we use:
Net Working Capital = Current Assets – Current Liabilities.

Rearranging to solve for current assets, we get:
Current Assets = Net Working Capital + Current Liabilities
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 =	$5,000,000	Market value Net Fixed Assets =	$6,300,000
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:

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

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	$ 100,000,000
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	93,000,000
Total equity	$264,000,000
Total Liabilities & Equity	$ 364,000,000

2.7 Cash flow to creditors = Interest paid – Net new borrowing
Cash flow to creditors = $127,000 – (Long-term debt$_{end}$ – Long-term debt$_{beg}$)

Cash flow to creditors = $127,000 – ($1,520,000 – $1,450,000)
Cash flow to creditors = $127,000 – $70,000
Cash flow to creditors = $57,000

2.8 Cash flow to stockholders = Dividends paid – Net new equity
Cash flow to stockholders = $275,000 – [($Common_{end}$ + $APIS_{end}$) – ($Common_{beg}$ + $APIS_{beg}$)]
Cash flow to stockholders = $275,000 – [($525,000 + $3,700,000) – ($490,000 + $3,400,000)]
Cash flow to stockholders = $275,000 – ($4,225,000 – $3,890,000)
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

Cash flow from assets = Operating cash flow – Change in Net Working Capital
– Net capital spending
–$3,000 = Operating cash flow – (–$87,000) – $945,000

Operating cash flow = –$3,000 – $87,000 + $945,000
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	10
Total cash flow from operations	$190
Investing activities	
Acquisition of fixed assets	$(110)
Total cash flow from investing activities	$(110)
Financing activities	
Proceeds of long-term debt	$5
Dividends	(75)
Total cash flow from financing activities	$(70)
Change in cash (on balance sheet)	$10

b. Change in NWC= $NWC_{end} - NWC_{beg}$

$= (CA_{end} - CL_{end}) - (CA_{beg} - CL_{beg})$

$= [(\$65 + \$170) - \$125] - [(\$55 + \$165) - \$115)$

$= \$110 - \$105$

$= \$5$

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	90
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	90
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	(5)
Cash flow from assets	\$70

2.11 With the information provided, the cash flows from the firm are the capital spending and the change in net working capital, so:

Cash flows from the firm	
Capital spending	\$(21,000)
Additions to NWC	(1,900)
Cash flows from the firm	\$(22,900)

And the cash flows to the investors of the firm are:

Cash flows to investors of the firm	
Sale of long-term debt	\$(17,000)
Sale of common shares	(4,000)
Dividends paid	14,500
Cash flows to investors of the firm	\$(6,500)

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:

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

b. And the operating cash flow is:

Operating cash flow = EBIT + Depreciation – Taxes
Operating cash flow = $415,000 + $110,000 – $116,900
Operating cash flow = $408,100

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

Income Statement	
Sales	$167,000
Costs	91,000
Depreciation	8,000
Other expenses	5,400
EBIT	$62,600
Interest	11,000
Taxable income	$51,600
Taxes	18,060
Net income	$33,540
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:

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:

Net capital spending = Increase in Net fixed assets + Depreciation
Net capital spending = $22,400 + $8,000
Net capital spending = $30,400

Now we can use:

Cash flow from assets = Operating cash flow – Net capital spending – Change in NWC $20,350 = $52,540 – $30,400 – Change in NWC.

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:

Net income = Dividends + Addition to retained earnings
Net income = $1,570 + $4,900
Net income = $6,470

Now, looking at the income statement:

EBT – (EBT × Tax rate) = Net income

Recognize that EBT × tax rate is simply the calculation for taxes. Solving this for EBT yields:

EBT = NI / (1– Tax rate)
EBT = $6,470 / (1 – 0.35)
EBT = $9,953.85

Now we can calculate:

EBIT = EBT + Interest
EBIT = $9,953.85 + $1,840
EBIT = $11,793.85

The last step is to use:

EBIT = Sales – Costs – Depreciation
$11,793.85 = $41,000 – $26,400 – Depreciation
Depreciation = $2,806.15

2.15 The balance sheet for the company looks like this:

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

Total liabilities and equity is:

Total liabilities & equity = Total debt + Common shares + Accumulated retained earnings

Solving for this equation for equity gives us:

Common shares = $6,180,000 – $3,240,000 – $2,940,000
Common shares= $0

2.16 *a.* The market value of shareholders' equity can be stated as: Shareholders' equity = Max [(Total assets – 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.*

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

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 – Change in NWC – Net capital spending Cash flow from assets = $65,000 – 0 – 0 = $65,000

Cash flow to stockholders = Dividends – Net new equity
Cash flow to stockholders = $34,000 – 0 = $34,000

Cash flow to creditors = Cash flow from assets – 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 = Interest – 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:

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

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

Cash flow to stockholders = Cash flow from assets – Cash flow to creditors
= –$12 – $670
= –$682

We can also calculate the cash flow to stockholders as:

Cash flow to stockholders = Dividends – Net new equity

Solving for net new equity, we get:

Net new equity = $650 – (–$682)
= $1,332

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.

2.20 *a.* Total assets 2014 = $936 + $4,176 = $5,112
Total liabilities 2014 = $382 + $2,160 = $2,542

Owners' equity 2014 = $5,112 – $2,542 = $2,570

Total assets 2015 = $1,015 + $4,896 = $5,911
Total liabilities 2015 = $416 + $2,477 = $2,893
Owners' equity 2015 = $5,911 – $2,893 = $3,018

b. NWC 2014 = CA14 – CL14 = $936 – $382 = $554
NWC 2015 = CA15 – CL15 = $1,015 – $416 = $599
Change in NWC = NWC15 – NWC14 = $599 – $554 = $45

c. We can calculate net capital spending as:

Net capital spending = Net fixed assets 2015 – Net fixed assets 2014 + Depreciation
Net capital spending = $4,896 – $4,176 + $1,150
Net capital spending = $1,870

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

Net capital spending= Fixed assets bought – Fixed assets sold
$1,870 = $2,160 – Fixed assets sold
Fixed assets sold = $2,160 – $1,870
Fixed assets sold = $290

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):

EBIT = Sales – Costs – Depreciation
EBIT = $12,380 – $5,776 – $1,150
EBIT = $5,454

EBT = EBIT – Interest
EBT = $5,454 – $314
EBT = $5,140

Taxes = EBT 0.40
Taxes = $5,140 0.40
Taxes = $2,056

OCF = EBIT + Depreciation – Taxes
OCF = $5,454 + $1,150 – $2,056
OCF = $4,548

Cash flow from assets = OCF – Change in NWC – Net capital spending.
Cash flow from assets = $4,548 – $45 – $1,870
Cash flow from assets = $2,633

d. Net new borrowing = LTD15 – LTD14
Net new borrowing = $2,477 – $2,160
Net new borrowing = $317

Cash flow to creditors = Interest – Net new LTD
Cash flow to creditors = $314 – $317
Cash flow to creditors = –$3
Net new borrowing = $317 = Debt issued – Debt retired
Debt retired = $432 – $317
Debt retired = $115

2.21

Statement of Financial Position as of Dec. 31, 2014

Cash	$4,109	Accounts payable	$4,316
Accounts receivable	5,439	Notes payable	794
Inventory	9,670	Current liabilities	$5,110
Current assets	$19,218		
		Long-term debt	$13,460
Net fixed assets	$34,455	Owners' equity	35,103
Total assets	$53,673	Total liab. & equity	$53,673

Statement of Financial Position as of Dec. 31, 2015

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 assets	$56,545	Total liab. & equity	$56,545

2014 Income Statement		2015 Income Statement	
Sales	$7,835.00	Sales	$8,409.00
COGS	2,696.00	COGS	3,060.00
Other expenses	639.00	Other expenses	534.00
Depreciation	1,125.00	Depreciation	1,126.00
EBIT	$3,375.00	EBIT	$3,689.00
Interest	525.00	Interest	603.00
EBT	$2,850.00	EBT	$3,086.00
Taxes	969.00	Taxes	1,049.24
Net income	$1,881.00	Net income	$2,036.76
Dividends	$956.00	Dividends	$1,051.00
Additions to RE	$925.00	Additions to RE	$985.76

2.22 OCF = EBIT + Depreciation – Taxes
OCF = $3,689 + $1,126 – $1,049.24
OCF = $3,765.76

Change in NWC = $NWC_{end} - NWC_{beg} = (CA - CL)_{end} - (CA - CL)_{beg}$ Change in NWC = ($21,268 – $4,931) – ($19,218 – $5,110)
Change in NWC = $2,229

Net capital spending = $NFA_{end} - NFA_{beg}$ + Depreciation
Net capital spending = $35,277 – $34,455 + $1,126
Net capital spending = $1,948

Cash flow from assets = OCF – Change in NWC – Net capital spending
Cash flow from assets = $3,765.76 – $2,229 – $1,948
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 = $\text{Common shares}_{end} - \text{Common shares}_{beg}$
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
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	(98)
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	(23)
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	(3)
NWC cash flow	$(7)

Except for the interest expense and notes payable, 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	162
Debt service	$210
Proceeds from sale of long-term debt	(116)
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	13
Cash to stockholders	$ 99
Proceeds from new shares issue	(44)
Total	$ 55

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

$= (NFA_{end} - NFA_{beg}) + (\text{Depreciation} + AD_{beg}) - AD_{beg}$

$= (NFA_{end} - NFA_{beg}) + AD_{end} - AD_{beg}$

$= (NFA_{end} + AD_{end}) - (NFA_{beg} + AD_{beg}) = FA_{end} - FA_{beg}$

MINI CASE Cash Flows at Warf Computers

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

OCF = EBIT + Depreciation – Current taxes
OCF = $1,598 + $191 – $467
OCF = $1,322

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 net fixed assets	$2,770
– Beginning net fixed assets	2,151
+ Depreciation	191
Net capital spending	$ 810

And the change in net working capital was:

Change in net working capital	
Ending NWC	$874
– Beginning NWC	704
Change in NWC	$170

So, the cash flow from assets was:

Cash flow from assets	
Operating cash flow	$1,322
– Net capital spending	810
– Change in NWC	170
Cash flow from assets	$342

The cash flow to creditors was:

Cash flow to creditors	
Interest paid	$105
– Net New Borrowing	24
Cash flow to Creditors	$81

The cash flow to stockholders was:

Cash flow to stockholders	
Dividends paid	$671
– Net new equity raised	–36
Cash flow to Stockholders	$635

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

Statement of Cash Flows

Operations	
Net income	$896
Depreciation	191
Deferred taxes	130
Changes in assets and liabilities	
Accounts receivable	(37)
Inventories	17
Accounts payable	20
Accrued expenses	(118)
Other	(11)
Total cash flow from operations	$1,088
Investing activities	
Acquisition of fixed assets	$(1,140)
Sale of fixed assets	330
Total cash flow from investing activities	$(810)
Financing activities	
Retirement of debt	$(151)
Proceeds of long-term debt	175
Notes payable	6
Dividends	(671)
Repurchase of shares	(48)
Proceeds from new shares issues	12
Total cash flow from financing activities	$(677)
Change in cash (on balance sheet)	$47

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 $170 in new net working capital and $810 in new fixed assets. The firm was able to return $635 to its stockholders and $81 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.

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Appendix

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 = Profit margin x Asset turnover.
= 0.07x 1.8
= 0.126 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 x TD Ratio)
= 1 / (1–TD Ratio)
= 1 /(1–0.72) = 3.57

ROE = Profit margin x Asset turnover x Equity multiplier
= 0.07 x 1.8 x 3.57
= 0.4498 or 44.98%

2.A3

Receivables turnover	= 17,465/3,210 = 5.44 times
Average Collection Period	= 365/5.44 = 67.08 days
Payables turnover	= 12,216/2,230 = 5.48 times
Average payment period	= 365/5.47 = 66.63 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 <u>Short–term Solvency Ratios</u>

Current ratio for 2014	= (800 + 1,950+3,135) / (1,550 + 1,629 + 746) = 1.50
Current ratio for 2015	= (1800 + 2,040 + 2,300) / (1,630 + 1,380 + 625) = 1.69
Quick ratio for 2014	= (800 + 1,950) / (1550+1,629 + 746)= 0.70
Quick ratio for 2015	= (180 + 2040) / (1,630+ 1,380 + 625)=
Cash ratio for 2014	= 800 / (1,550 + 1,629 + 746) = 0.20
Cash ratio for 2015	= 1800/ (1,630 + 1,380 + 625) = 0.50

Asset Management Ratios 2015

Total asset turnover	= 4,500/ 11,270 = 0.40
Inventory turnover(using ending figure)	= 2,400/ 2,300 = 1.04
Inventory turnover (using average)	= 2,400 / 2,717.5= 0.88
Receivables turnover (using ending figure)	= 4,500 / 2,040 = 2.21
Receivables turnover (using average)	= 4,500 / 1,995= 2.26

Long–term Solvency Ratios

Debt ratio for 2014	= (10,505 – 570 – 2,523)/10,505 = 0.71
Debt ratio for 2015	= (11,270 – 1,146 – 2,709)/11,270 = 0.66
Debt/equity ratio for 2014	= 7,412/3,093 = 2.40
Debt/equity ratio for 2015	= 7,415/3,855 = 1.92
Equity multiplier for 2014	= 2.40 + 1 = 3.40
Equity multiplier for 2015	= 1.92 + 1 = 2.92
Interest Coverage ratio	= 1,600/480= 3.33
Cash coverage ratio	= (1,600 + 500)/480= 4.38

Profitability Ratios 2015

Profit margin	= 740/4,500= 0.1644
ROA (net)	= 740/11,270 = 0.0656
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, 2015

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	(1,010.00)
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	576
Net cash from financing activities	66
Net increase in cash	$1,000.00
Cash, end of year	$1,800.00

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 = 0.9338 times

2.A8 Each student answer will be different depending on the industry and firm selected. Suggest preparing a current example for demonstration.
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.

CHAPTER 2 ACCOUNTING STATEMENTS AND CASH FLOW

Chapter Outline [PowerPoint slide 2–1]

2.1 The Balance Sheet

2.2 The Statement of Comprehensive Income

2.3 Net Working Capital

2.4 Financial Cash Flow

2.5 Summary and Conclusions

Appendix 2A: Financial Statement Analysis

Appendix 2B: Statement of Cash Flows

This chapter contains material that most students have already seen in a required financial accounting course. Consequently, many professors do not have a separate lecture on Chapter 2. To the extent that this is a finance course, go over topics that may not have been emphasized in the required accounting course, including financial cash flows and financial statement analysis. A handout listing the financial ratios discussed in Appendix 2A is provided at the end of the lecture notes. It is more convenient to have the ratios in a handout during class discussions.

The Financial Statements [PowerPoint slides 2–3 to 2–29]

Review the balance sheet and income statement of the Canadian Composite Company from the text. During class you may wish to discuss the firm's performance by going over the Financial Cash Flows in Table 2.3 **[PowerPoint slides 2–20 to 2–29]** and financial ratios from the appendix of the text (see the HANDOUT at the end of the Chapter 2 Lecture Notes).

Financial Cash Flows [PowerPoint slides 2–20 to 2–29]

The primary objective of this chapter is to encourage students to focus on cash flow rather than accounting profit. The Financial Cash Flows in Table 2.3 **[PowerPoint slides 2–20 to 2–29]** illustrate cash flow accounting. The basic balance sheet equality is:

$$CF(ASSETS) = CF(BONDS) + CF(STOCK)$$

That is: "what goes in must come out."

CF(ASSETS) are net cash flows to the firm's assets. It consists of net changes in net working capital, net changes in fixed assets, and cash flows from operations. For the Canadian Composite Corporation:

Cash flow of the firm	**(in $ millions)**
Operating cash flow	
(Earnings before interest and taxes plus depreciation minus taxes)	$238
Capital spending	
(Acquisitions of fixed assets minus sales of fixed assets)	($173)
Additions to net working capital	(23)
Total	$42
Cash flow to investors in the firm	
Debt	
(Interest plus retirement of debt minus long–term debt financing)	$36
Equity	
(Dividends plus repurchase of equity minus new equity financing)	6
Total	$42

For rapidly growing firms, total cash flow to assets is often negative because of heavy capital expenditures. Additional borrowing (debt) and/or new equity offerings are needed to finance such expenditures. Sources and uses of cash are discussed in more depth in Chapters 3 and 27.

Financial Statement Analysis – Appendix 2A [PowerPoint slides 2–30 to 2–53]

The remaining powerpoint slides go though the calculations of the ratios with examples of what the results might mean. In reviewing the slides with the class, it is a good idea to walk through the calculations for Canadian Composite at the same time and discuss what the results for this company mean.

Cash Flow versus Accounting Profit

As an illustration of why cash flow is more important than accounting income, we sometimes present the Canadian Composite Income Statement on an accrual accounting basis and then on a cash flow basis. Cash items are identified and net cash flow defined as NCF = NI + noncash charges.

	Accrual Accounting Basis	*Cash Flow Basis*
Total operating revenues	$2,262	$2,262
Cost of goods sold	(1,655)	(1,655)
Selling, G & A expense	(327)	(327)
Depreciation	(90)	0
Operating income	$190	
Other income	29	29
Earnings before interest and tax	219	309
Interest expenses	(49)	(49)
Pretax income	170	
Taxes Current: 71 Deferred: 13	(84)	(71)
Net income Net cash flow (NCF)	86	189

Alternatively,

NCF = Net income + depreciation + deferred taxes
= 86 +90+13=189

Supplemental Bibliography

Lindenberg, E.B. and S.A. Ross, 1981, Tobin's Q ratio and industrial organization, *Journal of Business* 54, 1–32.

Supplemental Problems

Problem 2.1

Use the following information from Ricko Corporation to answer the next two questions.

Dividends = $24,000
Year–end stock price = $12 per share
Quick ratio = 1.2
Net working capital = $200,000
Inventory turnover ratio = 5.5
Receivables turnover= 10
Total liabilities to stockholders' equity ratio = 1.75
Monthly levels of accounts receivable, inventory, and accounts payable have not changed.

a. Complete the balance sheet and income statement below.

Balance Sheet as of December 31, 20XX

Assets

Cash	?
Marketable securities	$ 70,000
Accounts receivable	?
Inventory	?
Total current assets	?
Plant and equipment (net)	?
Total assets	?

Liabilities and Owners' Equity

Accounts payable	?
Notes payable – bank (12%)	$ 100,000
Accrued expenses	$ 20,000
Total current liabilities	?
Common stock (80,000 shares at $1 par)	$ 360,000
Long–term debt (10%)	$ 80,000
Retained earnings	$ 240,000
Total liabilities and owners' equity	?

Income Statement for Year Ended December 31, 20XX

Sales (all credit sales)	$1,200,000
Cost of goods sold	?
Gross profit	?
Selling and administrative expense	$ 200,000
Operating income	?
Interest expense	$ 48,000
Income before taxes	?
Income tax (34% tax rate)	?
Net income	?

b. Compute the following ratios:

Current ratio
Earnings per share
Return on common equity (%)
Total assets turnover
Interest coverage ratio
Net profit margin (%) – also called "net operating margin"

Solution 2.1

Part a:

Stockholders' equity = Common stock + Retained earnings = $320,000
Since total liabilities to stockholders' equity ratio is 1.75, then
Total liabilities = $320,000 x 1.75 = $560,000.
Total current liabilities = Total liabilities – Long–term debt = $560,000 – $360,000 = $200,000.
Accounts payable = $200,000 – $100,000 – $20,000 = $80,000.
Total assets = $200,000 + $360,000 + $320,000 = $880,000.
Since Net working capital = Current assets – Current liabilities = $200,000, then
Current assets = Current liabilities + $200,000 = $400,000.
Plant and equipment = Total assets – Total current assets = $880,000 – $200,000 = $680,000.
Since Receivables turnover = Sales / Average receivables = 10, then
Average receivables = $1,200,000 / 10 = $120,000.
Since Quick ratio = 1.2, then Average inventory = Current assets – 1.2 x Current liabilities
= $400,000 – (1.2) ($200,000) =
$160,000. Cash = $50,000.

Since Inventory turnover = 5.5, then Cost of goods sold = Average inventory x 5.5 = $880,0.00.
Gross profits = $320,000.
Operating income = $120,000.
Income before taxes = $72,000.
Income tax = $24,480.
Net income = $47,520

Part b:

Current ratio = $400,000 / $200,000 = 2
EPS = $47,520 / 80,000 shares = $0.594
ROE = $47,520 / ($80,000 + $240,000) = 14.9%
Total assets turnover = $1,200,000 / $880,000 = 1.36
Interest coverage ratio = $120,000 / $48,000 = 2.5
Net profit margin = $47,520 / $1,200,000 = 3.96%

Problem 2.2

Construct Financial Cash Flows from the following information:

Balance Sheet (in thousands)	**December 31, 20x4**	**December 31, 20x5**
Assets		
Cash	$150	$100
Marketable securities	90	75
Accounts receivable	200	220
Inventory	350	380
Current assets	790	775
Gross plant and equipment	600	700
less Accumulated depreciation	(120)	(150)
Net fixed assets	480	550
Total assets	$1,270	$1,325
Liabilities and Owners' Equity		
Accounts payable	$70	$65
Notes payable	175	115
Accrued expenses	5	7
Accrued taxes	5	8
Current liabilities	255	195
Long–term debt	405	430
Common stock	210	285
Retained earnings	400	415
Total liabilities and owners' equity	$1,270	$1,325

Income Statement for Year Ended December 31. 20X5

Revenues	$2000
Cost of goods sold	1750
Selling and administrative expense	50
Operating income	200
Depreciation	30
Operating Income	170
Interest expense	60
Income Before Tax	110
Taxes (at 50%)	55
Net income	55
Dividends	40
Retained earnings	15

Solution 2.2

Operating CF = EBIT + depreciation – current taxes
= $170 + $30 – $55 = $145
Capital spending = $700–$600=$100
Additions to net working capital (NWC) = $580 – $535 = $45

CF(ASSETS) = Operating CF – Capital spending – Additions to NWC

= $145 – $100 – $45 = $0

CF(BONDS) = Interest + debt retirement – proceeds from debt sales
= $60 + $0 + (–$25) = $35
CF(STOCK) = Dividends – new stock issues
= $40+(–$75) = –$35
CF(ASSETS) = CF(BONDS) + CF(STOCK) = $35 – $35 = $0

HANDOUT: Useful Financial Ratios

SHORT–TERM SOLVENCY RATIOS

Current ratio = Current assets ÷ Current liabilities
Quick ratio = (Current assets – Inventory) ÷ Current liabilities

ACTIVITY RATIOS

Total asset turnover = Total operating revenues ÷ Average total assets
Receivables turnover = Total operating revenues ÷ Average receivables
Average collection period = Days in period ÷ Receivables turnover
Inventory turnover = Cost of goods sold ÷ Average inventory
Days in inventory = Days in period ÷ Inventory turnover

FINANCIAL LEVERAGE RATIOS

Debt ratio = Total debt ÷ Total assets
Debt–equity ratio = Total debt ÷ Total equity
Equity multiplier = Total assets ÷ Total equity
Interest coverage = Earnings before interest and taxes ÷ Interest

PROFITABILITY RATIOS

Net profit margin = Net income ÷ Total operating revenue
Gross profit margin = Earnings before interest and taxes ÷ Total operating revenues
Net return on assets = Net Income ÷ Average Total Assets
Gross return on assets = Earnings before interest and taxes ÷ Average total assets
Net[Gross] Return on assets (ROA) = Net[Gross] Profit margin x Asset Turnover
Return on equity (ROE) = Net income ÷ Average stockholders' equity
Payout ratio = Cash dividends ÷ Net Income
Retention ratio = Retained earnings ÷ Net Income = 1 – Payout ratio

MARKET VALUE RATIOS

Price–to–earnings (P/E) ratio = Market price per share ÷ Earnings per share
Dividend yield = Dividend per share ÷ Market price per share
Market–to–book (M/V) ratio = Market price per share ÷ Book value per share
Tobin's Q ratio = (Market value of debt + equity) ÷ Replacement value of total assets

Accounting Statements and Cash Flow

2

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Chapter Outline

Sources of Information

- Statistics Canada and SEDAR:
  - financial statements, selected ratios
- Dun and Bradstreet Canada:
  - key business ratios
- *Infomart* and *InfoGlobe*:
  - financial databases
- Internet
  - TSX (www.tsx.com)
- OSC

Statement of Financial Position (SFP)

- An accountant's snapshot of the firm's accounting position as at a particular date.
- The accounting definition:

Assets = Liabilities + Shareholders' Equity

LO 2.1

Canadian Composite Corporation (Table 2.1)
The Statement of Financial Position

Assets are listed in order of how long it takes to convert them into cash. Cash is the most liquid and comes first.

CANADIAN COMPOSITE CORPORATION
Statement of Financial Position
2013 and 2014
(in $ millions)

Assets

	2014	2013
Current assets:		
Cash and equivalents	$140	$107
Accounts receivable	294	270
Inventories	269	280
Other	58	50
Total current assets	$761	$707
Long-Term assets:		
Property, plant, and equipment	$1,423	$1,274
Less accumulated depreciation	-550	-460
Net property, plant, and equipment	873	814
Intangible assets and other	245	221
Total long-term assets	$1,118	$1,035
Total assets	$1,879	$1,742

Liabilities and Shareholder's Equity

	2014	2013
Current Liabilities:		
Accounts payable	$213	$197
Notes payable	50	53
Accrued expenses	223	205
Total current liabilities	$486	$455
Long-term liabilities:		
Deferred taxes	117	104
Long-term debt	471	458
Total long-term liabilities	$588	$562
Shareholder's equity:		
Preferred shares	39	39
Common shares	376	339
Accumulated retained earnings	390	347
Total equity	$805	$725
Total liabilities and shareholder's equity	$1,879	$1,742

LO 2.1

Statement of Financial Position Analysis

- When analyzing a SFP, the financial manager should be aware of three concerns:

1. Liquidity
2. Debt versus equity
3. Value versus cost

LO 2.1

Accounting Liquidity

- Refers to the ease and speed with which assets can be converted to cash.
- Current assets are more liquid than long-term assets
- The more liquid a firm's assets, the less likely it will experience problems meeting short-term obligations.
- Liquid assets frequently have lower rates of return than long-term assets.

LO 2.1

Debt versus Equity

- Generally, when a firm borrows it gives the bondholders first claim on the firm's cash flow.
- Shareholders' equity is the residual difference between assets and liabilities.

LO 2.1

Value versus Cost

- In 2011, publicly traded firms in Canada adopted International Financial Reporting Standards (IFRS).
- The accounting value of a firm's assets is frequently referred to as the *carrying value* or *book value*.
- Market value is a completely different concept. It is the price at which willing buyers and sellers trade the assets.

LO 2.1

The Statement of Comprehensive Income (SCI)

- The statement of comprehensive income (SCI) measures performance over a specific period of time.
- The accounting definition of "income" is

REVENUE – EXPENSES = INCOME

LO 2.2

Statement of Comprehensive Income (Table 2.2)

CANADIAN COMPOSITE CORPORATION
Statement of Comprehensive Income
2014
(in $ millions)

The **operations** section of the statement reports the firm's revenues and expenses from principal operations

Total operating revenues	$2,262
Cost of goods sold	- 1,655
Selling, general, and administrative expenses	- 327
Depreciation	- 90
Operating income	$190
Other income	29
Earnings before interest and taxes	$219
Interest expense	- 49
Pretax income	$170
Taxes	- 84
Current: $71	
Deferred: $13	
Net income	$86
Retained earnings:	$43
Dividends:	$43

LO 2.2

Statement of Comprehensive Income

CANADIAN COMPOSITE CORPORATION
Statement of Comprehensive Income
2014
(in $ millions)

The **non-operating** section of the statement includes other income and all financing costs, including interest expense.

Total operating revenues	$2,262
Cost of goods sold	- 1,655
Selling, general, and administrative expenses	- 327
Depreciation	- 90
Operating income	$190
Other income	29
Earnings before interest and taxes	$219
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LO 2.2

Statement of Comprehensive Income

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Statement of Comprehensive Income
2014
(in $ millions)

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Other income	29
Earnings before interest and taxes	$219
Interest expense	- 49
Pretax income	$170
Taxes	- 84
Current: $71	
Deferred: $13	
Net income	$86
Retained earnings:	$43
Dividends:	$43

Usually a separate section reports the amount of taxes estimated on income.

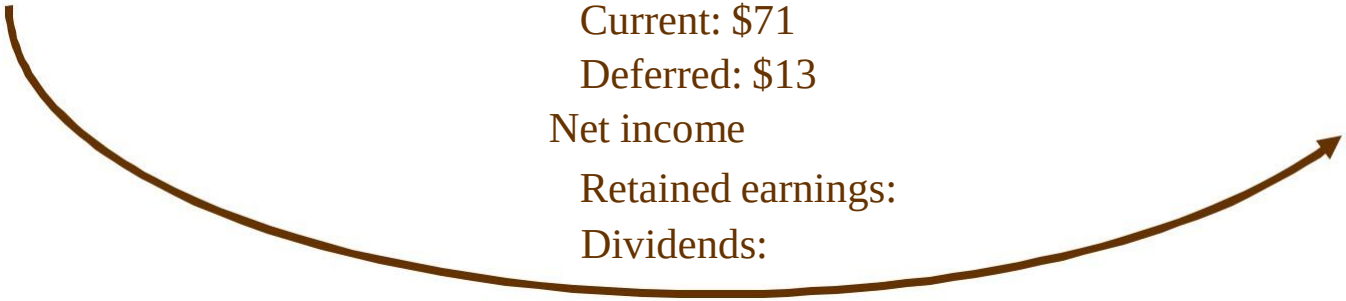
LO 2.2

Income Statement

CANADIAN COMPOSITE CORPORATION
Statement of Comprehensive Income
2014
(in $ millions)

Total operating revenues	$2,262
Cost of goods sold	- 1,655
Selling, general, and administrative expenses	- 327
Depreciation	- 90
Operating income	$190
Other income	29
Earnings before interest and taxes	$219
Interest expense	- 49
Pretax income	$170
Taxes	- 84
Current: $71	
Deferred: $13	
Net income	$86
Retained earnings:	$43
Dividends:	$43

Net income is the "bottom line".



LO 2.2

Statement of Comprehensive Analysis

- There are three things to keep in mind when analyzing the statement of comprehensive income:
  1. The accounting standards used – i.e. International Financial Reporting Standards (IFRS)
  2. Non-Cash Items
  3. Time and Costs

LO 2.2

International Financial Reporting Standards

1. IFRS

The accrual basis of accounting is used-

- Revenues are recognized when earned and the earnings process is complete even though cash flows may not have been received.
- Expenses incurred to earn the revenue are recognized at the same time the related revenue is reported even though no cash may have been paid.

LO 2.2

Income Statement Analysis

LO2.2

2. Non Cash Items

- These are expenses that ***do not*** affect cash flow directly.
- Depreciation is the most common. No firm ever writes a cheque for “depreciation.”
- Another noncash item is deferred taxes, which does not represent a cash flow.

Income Statement Analysis

3. Time and Costs

- In the short term:
  - certain costs related to equipment, resources, and commitments of the firm are *fixed*;
  - other costs are *variable* based on production levels such as inputs for labour and raw materials.
- In the long run, all costs are *variable*.
- Financial accountants do not distinguish between variable costs and fixed costs.
  - Instead, accounting distinguishes product costs (production costs) from period costs (time period costs).

LO 2.2

Net Working Capital

Net Working Capital = Current Assets – Current Liabilities

- NWC is **positive** when current assets are greater than current liabilities.
- A firm can *invest* in NWC. This is represented by the *change* in NWC and is equal to the:

  NWC (2014) – NWC (2013) = Change in NWC
- The *change* in NWC is usually **positive** in a growing firm.

LO 2.3

The Statement of Financial Position of the C.C.C.

CANADIAN COMPOSITE CORPORATION
Statement of Financial Position
2013 and 2014
(in $ millions)

$252m = $707- $455

Assets	2014	2013	Liabilities (Debt) and Shareholder's Equity	2014	2013
Current assets:			Current Liabilities:		
Cash and equivalents	$140	$107	Accounts payable	$213	$197
Accounts receivable	294	270	Notes payable	50	53
Inventories	269	280	Accrued expenses	223	205
Other	58	50	Total current liabilities	$486	$455
Total current assets	$761	$707			

$275m = $761- $486

Here we see NWC grow to $275 million in 2014 from $252 million in 2013.

$23 million

This increase of $23 million is an investment of the firm.

LO 2.3

Financial Cash Flow

- In finance, the most important item that can be extracted from financial statements is the actual cash flow of the firm.
- Since there is no magic in finance, it must be the case that the cash received from the firm's assets must equal the cash flows to the firm's bondholders (creditors) and shareholders.

$$CF(A) = CF(B) + CF(S)$$

LO 2.4

Financial Cash Flow (Table 2.3)

CANADIAN COMPOSITE CORPORATION
Financial Cash Flow
2014
(in $ millions)

Cash Flow of the Firm	
Operating cash flow (Earnings before interest and taxes plus depreciation minus taxes)	$238
Capital spending (Acquisitions of long-term assets minus sales of long-term assets)	-173
Additions to net working capital	-23
Total	$42
Cash Flow of Investors in the Firm	
Debt (Interest plus retirement of debt minus new long-term debt financing)	$36
Equity (Dividends plus repurchase of equity minus new equity financing)	6
Total	$42

Operating Cash Flow:

EBIT	$219
Depreciation	$90
Current Taxes	($71)
OCF	$238

LO 2.4

Financial Cash Flow (Table 2.3)

CANADIAN COMPOSITE CORPORATION
Financial Cash Flow
2014
(in $ millions)

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Cash Flow of Investors in the Firm	
Debt (Interest plus retirement of debt minus new long-term debt financing)	$36
Equity (Dividends plus repurchase of equity minus new equity financing)	6
	$42

Capital Spending

Purchase of long-term assets	$198
Sales of long-term assets	(25)
Capital spending	$173

LO 2.4

Total
$42

Financial Cash Flow (Table 2.3)

CANADIAN COMPOSITE CORPORATION
Financial Cash Flow
2014
(in $ millions)

Cash Flow of the Firm	
Operating cash flow (Earnings before interest and taxes plus depreciation minus taxes)	$238
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Debt (Interest plus retirement of debt minus new long-term debt financing)	$36
Equity (Dividends plus repurchase of equity minus new equity financing)	6
Total	$42

NWC grew to $275 million in 2014 from $252 million in 2013.

This increase of $23 million is the addition to NWC.

LO 2.4

Financial Cash Flow (Table 2.3)

CANADIAN COMPOSITE CORPORATION
Financial Cash Flow
2014
(in $ millions)

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LO 2.4

Total	$42

Financial Cash Flow (Table 2.3)

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2014
(in $ millions)

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Cash Flow of Investors in the Firm	
Debt (Interest plus retirement of debt minus new long-term debt financing)	$36
Equity (Dividends plus repurchase of equity minus new equity financing)	6
Total	$42

Cash Flow to Creditors

Interest	$49
Retirement of debt	73
Debt service	122
Proceeds from issue of new debt	(86)
Total	36

LO 2.4

Financial Cash Flow (Table 2.3)

CANADIAN COMPOSITE CORPORATION
Financial Cash Flow
2014
(in $ millions)

Cash Flow of the Firm	
Operating cash flow (Earnings before interest and taxes plus depreciation minus taxes)	$238
Capital spending (Acquisitions of long-term assets minus sales of long-term assets)	-173
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Total	$42
Cash Flow of Investors in the Firm	
Debt (Interest plus retirement of debt minus new long-term debt financing)	$36
Equity (Dividends plus repurchase of equity minus new equity financing)	6
Total	$42

Cash Flow to Shareholders	
Dividends	$43
Repurchase of shares	6
Cash to Shareholders	49
Proceeds from new share issue	(43)
Total	$6

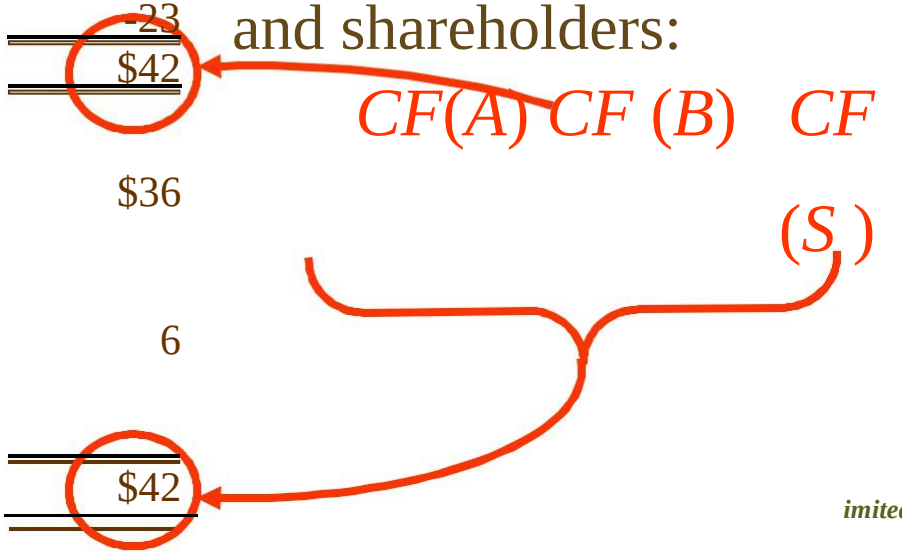
LO 2.4

Financial Cash Flow (Table 2.3)

CANADIAN COMPOSITE CORPORATION
Financial Cash Flow
2014
(in $ millions)

Cash Flow of the Firm	
Operating cash flow (Earnings before interest and taxes plus depreciation minus taxes)	$238
Capital spending (Acquisitions of long-term assets minus sales of long-term assets)	-173
Additions to net working capital	-23
Total	$42
Cash Flow of Investors in the Firm	
Debt (Interest plus retirement of debt minus new long-term debt financing)	$36
Equity (Dividends plus repurchase of equity minus new equity financing)	6
Total	$42

The cash received from the firm's assets must equal the cash flows to the firm's bondholders and shareholders:



LO 2.4

Financial Cash Flow

Important observations:

- Cash flow from operations measures cash generated before investment in capital requirements and net working capital.
- Net income is based on accruals and deferrals and is not cash flow.
- **Free cash flows** represents cash flow from assets. It is calculated as cash flow from operations less investments in capital expenditures and NWC.

Summary and Conclusions

- A financial manager should be able to determine **cash flow** from a firm's financial statements.
- Net income is not cash flows.
- Cash flow generated by a firm is used to pay bondholders and shareholders.
- You should keep in mind:
  - Measures of profitability do not take risk or timing of cash flows into account.

Appendix 2A Financial Statement Analysis

- Financial ratios provide information about five areas of financial performance:
  1. Short-term solvency
  2. Activity
  3. Financial leverage
  4. Profitability
  5. Market value

Short-term solvency ratios

- Measure the firm's ability to meet recurring financial obligations

$$\text{Current ratio} \quad \frac{\text{Total current assets}}{\text{Total current liabilitie s}}$$

- A higher current ratio indicates greater liquidity

Short-term solvency ratios (continued)

$$\text{Quick ratio} = \frac{\text{Quick assets}}{\text{Total current liabilities}}$$

- Quick assets = Current assets – inventories
- Quick ratio determines firm's ability to pay current liabilities without relying on the sale of inventories.

Short-term solvency ratios (continued)

$$\text{Cash ratio} = \frac{\text{Cash}}{\text{Current liabilities}}$$

- Cash ratio examines the firm's ability to pay current liabilities in the short term (i.e. from cash only).

Activity ratios

- Measure how effectively the firm's assets are being managed

$$\text{Total asset turnover} = \frac{\text{Total operating revenues}}{\text{Average total assets}}$$

- Example: retail and wholesale trade firms tend to have *high* asset turnover ratios compared to manufacturing firms.

Activity ratios (continued)

$$\text{Receivables turnover} = \frac{\text{Total operating revenues}}{\text{Average receivables}}$$

$$\text{Average collection period} = \frac{\text{Days in period (i.e.365)}}{\text{Receivables turnover}}$$

- These ratios provide information on the success of the firm in managing its investment in accounts receivable.

Activity ratios (continued)

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

$$\text{Days in inventory} = \frac{\text{Days in period (i.e.365)}}{\text{Inventory turnover}}$$

- Measure how quickly inventory is produced and sold.
  - Important to consider method used to value the inventory

Financial leverage ratios

- Measure the extent to which a firm relies on debt financing .

$$\text{Debt ratio} \quad \frac{\text{Total debt}}{\text{Total assets}}$$

$$\text{Debt - equity ratio} \quad \frac{\text{Total debt}}{\text{Total equity}}$$

$$\text{Equity multiplier} \quad \frac{\text{Total assets}}{\text{Total equity}}$$

Financial leverage ratios (continued)

rest coverage

$$\frac{\text{Earnings before interest and taxes (EBIT)}}{\text{Interest expense}}$$

- Interest coverage ratio is directly connected to the firm's ability to pay interest.
  - Drawback is that EBIT is not really a measure of cash

Financial leverage ratios (continued)

$$\text{Cash coverage} = \frac{\text{EBIT} \quad \text{Depreciation and Amortization}}{\text{Interest expense}}$$

- Cash coverage ratio examines the firm's ability to pay interest using cash flow from operations
  - adding back non-cash items to EBIT approximates the cash flow from operations.

Financial leverage ratios (continued)

$$\text{Payable Turnover} = \frac{COGS}{\text{Averge Accounts Payable}}$$

$$\text{Average Payment Period} = \frac{\text{Days in Period (365)}}{\text{Payable Turnover}}$$

- Payable turnover ratio and average payment period ratio examine how long it takes a company to pay its suppliers

Profitability ratios

$$\text{Net profit margin} = \frac{\text{Net income}}{\text{Total operating revenue}}$$

- Retail firms and service firms tend to have *low* and *high* profit ratios respectively.

Profitability ratios

$$\text{EBITDA margin} = \frac{\text{EBITDA}}{\text{Total operating revenue}}$$

- This ratio looks more to “cash flows” than net income
- A higher margin is desirable.

Profitability ratios

$$\text{Net return on assets} = \frac{\text{Net income}}{\text{Average total assets}}$$

$$\text{Gross return on assets} = \frac{\text{EBIT}}{\text{Average total assets}}$$

- Net (or gross) return on assets measures managerial performance and how effectively assets are being used to generate income

Profitability (continued)

DuPont system of financial control

Return on assets = Profit margin x Asset turnover

$$\text{Return on assets} = \frac{\text{Net income}}{\text{Total operating revenue}} \times \frac{\text{Total operating revenue}}{\text{Average total assets}}$$

- Firms tend to face a trade-off between turnover and margin

Profitability (continued)

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Average shareholders equity}}$$

ROE = Profit margin x Asset turnover X Equity multiplier

$$\text{ROE} = \frac{\text{Net income}}{\text{Total operating revenue}} \times \frac{\text{Total operating revenue}}{\text{Average total assets}} \times \frac{\text{Average total assets}}{\text{Average shareholders' equity}}$$

- The difference between ROA and ROE is due to financial leverage.

Profitability (continued)

Payout ratio and Retention ratio

$$\text{Payout ratio} = \frac{\text{Cash dividends}}{\text{Net income}}$$

$$\text{etention ratio} = \frac{\text{Annual retained earnings}}{\text{Net income}}$$

- Payout ratio measures the amount paid as dividends; and retention ratio is the remainder – how much is retained by the company for reinvestment.

Sustainable Growth Rate

$$\text{Sustainble Growth Rate} \quad \frac{\text{ROE}}{\text{Retention ratio}}$$

- Measures the maximum growth rate that the company can sustain with no external financing, while maintaining a constant debt to equity ratio

Market value ratios

Enterprise Value (EV) = Market capitalization
+ MV of interest bearing debt - Cash

Enterprise Value Multiple $= \frac{\text{Enterprise Value}}{\text{EBITDA}}$

- Enterprise value is the value of the total firm
- EV multiple is used to compare with other companies and is not affected by capital structure, taxes or capital spending

Market value ratios (continued)

$$\text{Price - Earnings ratio} = \frac{\text{Market price/share}}{\text{current annual earnings/share}}$$

- P/E ratio shows how much investors are willing to pay for $1 of earnings per share.
- It also reflects investors' views of the growth potential of different sectors.

Market value ratios (continued)

$$\text{Dividend yield} = \frac{\text{Dividend/share}}{\text{Market price/share}}$$

- Like P/E ratios, dividend yields are related to the market's perception of future growth prospects for firms.

Market value ratios (continued)

$$\text{Market - to - Book ratio} = \frac{\text{Market price/share}}{\text{Book value/share}}$$

- The M/B ratio compares the market value of the firm's investments to their cost.
- a M/B value < 1 might indicate that the firm has not been successful in creating value for its shareholders.

Remarks on ratios

- Financial ratios are useful within a firm for performance evaluation.
- Financial ratios are used outside the firm by creditors and shareholders.
- Need to choose an appropriate benchmark.
- Judgment and experience are important in interpreting ratios.
- Comparisons with other companies may be difficult due to different year ends and one-time events.

Summary and Conclusions – Financial ratios

- Measures of profitability do not consider risk and timing of cash flows.
- Financial ratios are linked together.
- Financial ratios cannot be looked at in isolation.
- Require judgment and experience to interpret results.

Appendix 2B Statement of Cash Flows

- This statement helps explain the change in accounting cash.
  1. Cash flow from operating activities
  2. Cash flow from investing activities
  3. Cash flow from financing activities

Cash flow from operating activities

CANADIAN COMPOSITE CORPORATION
Cash Flow from Operating Activities
2014
(in $ millions)

Net income	$86
Depreciation	90
Deferred taxes	13
Change in assets and liabilities	
Accounts receivable	-24
Inventories	11
Accounts payable	16
Accrued expense	18
Notes payable	(3)
Other	(8)
Cash flow from operating activities	$199

Cash flow from investing activities

CANADIAN COMPOSITE CORPORATION
Cash Flow from Investing Activities
2014
(in $ millions)

Acquisition of long-term assets	$(198)
Sale of long-term assets	25
Cash flow from investing activities	$(173)

Cash flow from financing activities

CANADIAN COMPOSITE CORPORATION
Cash Flow from Financing Activities
2014
(in $ millions)

Retirement of debt (includes notes)	$(73)
Proceeds from long-term debt issues	86
Dividends	(43)
Repurchase of shares	(6)
Proceeds from new share issue	43
Cash flow from financing activities	$7

Quick Quiz

- What is the difference between book value and market value? Which should we use for decision making purposes?
- What is the difference between accounting income and cash flow? Which do we need to use when making decisions?
- How do we determine a firm's cash flows? What are the equations, and where do we find the information?

Quick Quiz

- What are the major categories of financial ratios?
- How do you compute the ratios within each category?
- What are some of the problems associated with financial statement analysis?