Chapter 2

Answers to Review Problems
Finance For Executives – 4th Edition

1. Accounting allocation of transactions.

	CA	NCA	CL	NCL	OE	REV	EXP	RE
1. Factory equipment purchased for cash	✓	✓						
2. Goodwill impairment loss		✓			✓		✓	✓
3. Interest income received	✓				✓	✓		✓
4. Dividend declared			✓		✓			✓
5. Shares repurchased	✓				✓			
6. Sell merchandise on account	✓				✓	✓	✓	✓
7. Pay two months' rent in advance								
8. Purchase raw material on account	✓		✓					
9. Receive cash advance from customer	✓		✓					
10. Recognize salaries earned by employees			✓		✓		✓	✓

2. Missing accounts.

	Firm 1	Firm 2	Firm 3
Assets, beginning of period	$1,000	**$400**	**$1,500**
Assets, end of period	1,100	500	**1,500**
Owner's equity, beginning of period	500	200	**900**
Owners' equity, end of period	**600**	**260**	1,000
Liabilities, beginning of period	**500**	200	600
Liabilities, end of period	**500**	**240**	500
Revenues of the period	2,000	**200**	600
Expenses of the period	1,800	180	**500**

Earnings after tax of the period	**200**	20	100
Dividends (from earnings of the period)	100	10	0
Shares issued ($ amount) during the period	0	50	0

Firm 1

Liabilities $_{\text{beginning of period}}$ = Assets $_{\text{beginning of period}}$ – Owners' equity $_{\text{beginning of period}}$

= $1,000 – $500 = **$500**

Earnings of the period = Revenues of the period – Expenses of the period

= $2,000 – $1,800 = **$200**

Owners' equity $_{\text{end of period}}$ = Owners' equity $_{\text{beginning of period}}$ + Earnings after tax of the period – Dividends + $Amount of shares issued during the period

= $500 + $200 - $100 + $0 = **$600**

Liabilities $_{\text{end of period}}$ = Assets $_{\text{end of period}}$ – Owners' equity$_{\text{end of period}}$

= $1,100 – $600 = **$500**

Firm 2

Assets $_{\text{beginning of period}}$ = Liabilities $_{\text{beginning of period}}$ + Owners' equity $_{\text{beginning of period}}$

= $200 + $200 = **$400**

Revenues of period = Earnings after tax of period + Expenses of period

= $20 + $180 = **$200**

Owners' equity $_{\text{end of period}}$ = Owners' equity $_{\text{beginning of period}}$ + Earnings after tax of the period – Dividends + $Amount of shares issued during the period

= $200 + $20 - $10 + $50 = **$260**

Liabilities $_{\text{end of period}}$ = Assets $_{\text{end of period}}$ – Owners' equity$_{\text{end of period}}$

= $500 – $260 = **$240**

Firm 3

Owners' equity $_{\text{beginning of period}}$ = Owners' equity $_{\text{end of period}}$ - Earnings after tax of the period + Dividends - $Amount of shares issued during the period

= $1,000 - $100 + $0 - $0 = **$900**

$\text{Assets}_{\text{beginning of period}}$ = $\text{Liabilities}_{\text{beginning of period}}$ + $\text{Owners' equity}_{\text{beginning of period}}$

= \$600 + \$900 = **\$1,500**

$\text{Assets}_{\text{end of period}}$ = $\text{Liabilities}_{\text{end of period}}$ + $\text{Owners' equity}_{\text{end of period}}$

= \$500 + \$1,000 = **\$1,500**

Expenses of the period = Revenues of the period – Earnings after tax of the period

= \$600 – \$100 = **\$500**

3. Balance sheet changes.

Figures in millions

a.

Year 1

Total assets = Total liabilities and Owners' equity

= \$40,936

Noncurrent assets = Total assets – Current assets

= \$40,936 – \$16,870 = **\$24,066**

Owners' equity = Total assets – (Current Liabilities + Noncurrent liabilities)

= \$40,936 – (\$13,466 + \$11,998) = **\$15,472**

Paid-in capital = Owners' equity – Retained earnings

= \$15,472 – \$13,438 = **\$2,034**

Year 2

Noncurrent assets = Total assets – Current assets

= \$48,050 – \$18,732 = **\$24,318**

Total liabilities and owners' equity = Total assets

= **\$48,050**

Earnings after tax = Dividends + ($\text{Accumulated earnings}_{\text{year 2}}$ – $\text{Accumulated Earnings}_{\text{year 1}}$)

= \$2,040 + (\$15,844 – \$13,438) = **\$4,446**

Owners' equity = Paid-in capital + Accumulated earnings

= $2,298 + $15,844 = **$18,142**

Noncurrent liabilities = Total assets – Current liabilities – Owners' equity

= $48,050 – $15,284 – $18,142 = **$14,624**

Year 3

Total assets = Current assets + Noncurrent assets

= $19,950 + $29,920 = **$49,870**

Total liabilities and owners' equity = Total assets

= **$49,870**

Owners' equity = Total assets – (Current Liabilities + Noncurrent liabilities)

= $49,870 – ($16,574 + $18,414) = **$14,882**

Retained earnings $_{year\ 3}$ = (Retained earnings $_{year\ 2}$ + Earnings (loss) after tax) – Dividends

= ($15,844 – $1,312) – $2,234 = **$12,298**

Paid-in capital = Owners' equity – Retained earnings

= $14,882 – $12,298 = **$2,584**

Year 4

Noncurrent assets = Total liabilities and owners' equity – Current assets

= $51,070 – $19,976 = **$31,094**

Total assets = Total liabilities and owners' equity

= **$51,070**

Retained earnings $_{year\ 4}$ = (Retained earnings $_{year\ 3}$ + Earnings (loss) after tax) – Dividends

= ($12,298 + $5,048) – $2,480 = **$14,866**

Owners' equity = Paid-in capital + Retained earnings

= $2,798 + $14,866 = **$17,664**

Noncurrent liabilities = (Total liabilities and owners' equity – Owners' equity) – Current liabilities

= ($51,070 – $17,664) – $16,080 = **$17,326**

End-of-year for balance sheet items	Year 1	Year 2	Year 3	Year 4
Current assets	$16,870	$18,732	$19,950	$19,976
Noncurrent assets	**24,066**	**29,318**	29,920	**31,094**
Total assets	**40,936**	48,050	**49,870**	**51,070**
Current liabilities	13,466	15,284	16,574	16,080
Noncurrent liabilities	11,998	**14,624**	18,414	**17,326**
Paid-in capital	**2,034**	2,298	**2,584**	2,798
Retained earnings	13,438	15,844	**12,298**	**14,866**
Earnings (loss) after tax	2,014	**4,446**	(1,312)	5,048
Dividends	1,580	2.040	**2,234**	2,480
Owners' equity	**15,472**	**18,142**	**14,882**	**17,664**
Total liabilities and owners' equity	40,936	**48,050**	**49,870**	51,070

b.
A large investment (e.g., the acquisition of another firm) would explain the increase in total assets between years 1 and 2. A mix of debt and equity financing was used to finance the investment.

c.
The decrease in retained earnings was the result of the year's net loss and dividend payments. The resulting decrease in internal funding was financed by an increase in long-term financing in the form of long-term debt.

d.
The firm became profitable again in Year 4. A portion of the cash generated by the renewed profitability was used to repay debt.

4. Balance sheet changes.

Figures in millions

a.

Year 1

Total assets = Total liabilities and Owners' equity

= $61,404

Noncurrent assets = Total assets – Current assets

= $61,404 – $25,305 = **$36,099**

Owners' equity = Total assets – (Current Liabilities + Noncurrent liabilities)

= $61,404 – ($20,199 + $17,997) = **$23,208**

Paid-in capital = Owners' equity – Retained earnings

= $23,208 – $20,157 = **$3,051**

Current assets – current liabilities

= $25,305 – $20,199 = **$5,106**

Year 2

Current assets = (Current assets – current liabilities) + Current liabilities

= $5,712 + $22,926 = **$28,638**

Noncurrent assets = Total assets – Current assets

= $72,075 – $28,638 = **$43,437**

Total liabilities and owners' equity = Total assets

= **$72,075**

Owners' equity = Paid-in capital + Retained earnings

= $3,447 + $23,766 = **$27,213**

Noncurrent liabilities = (Total assets – Current liabilities) – Owners' equity

= ($72,075 – $22,926) – $27,213 = **$21,936**

Year 3

Total assets = Current assets + Noncurrent assets

= $29,925 + $44,880 = **$74,805**

Total liabilities and owners' equity = Total assets

= **$74,805**

Owners' equity = Total assets – (Current liabilities + Noncurrent liabilities)

= $74,805 – ($24,861 + $27,621) = **$22,323**

Retained earnings $_{\text{year 3}}$ = (Retained earnings $_{\text{year 2}}$ + Earnings (loss) after tax) – Dividends

= ($23,766 – $1,968) – $3,351 = **$18,447**

Paid-in capital = Owners' equity – Retained earnings

= $22,323 – $18,447 = **$3,876**

Current assets – current liabilities

= $29,925 – $24,861 = **$5,064**

Year 4

Total assets = Total liabilities and owners' equity

= **$76,605**

Noncurrent assets = Total assets – Current assets

= $76,605 – $29,964 = **$46,641**

Current liabilities = Current assets – (Current assets – current liabilities)

= $29,964 – $5,844 = **$24,120**

Retained earnings $_{\text{year 4}}$ = (Retained earnings$_{\text{year 3}}$ + Earnings (loss) after tax) – Dividends

= ($18,447 + $7,572) – $3,720 = **$22,299**

Owners' equity = Paid-in capital + Retained earnings

= $4,197 + $22,299 = **$26,496**

Noncurrent liabilities = (Total assets – Current liabilities) – Owners' equity

= ($76,605 – $24,120) – $26,496 = **$25,989**

End-of-year for balance sheet items	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Current assets	$25,305	**$28,638**	$29,925	$29,964
Noncurrent assets	**36,099**	**43,437**	44,880	**46,641**
Total assets	**61,404**	72,075	74,805	**76,605**
Current liabilities	20,199	22,926	24,861	**24,120**
Current assets – current liabilities	**5,106**	5,712	**5,064**	5,844
Noncurrent liabilities	17,997	**21,936**	27,621	**25,989**
Paid-in capital	**3,051**	3,447	**3,876**	4,197

Retained earnings	20,157	23,766	**18,447**	**22,299**
Earnings (loss) after tax	n. a.	n. a.	(1,968)	7,572
Dividends	n. a.	n. a.	3,351	3,720
Total liabilities and owners' equity	61,404	**72,075**	**74,805**	76,605

b.
A large investment (e.g., the acquisition of another firm) would explain the increase in total assets between years 1 and 2. A mix of debt and equity financing was used to finance the investment.

5. Balance sheet changes.

Figures in millions

a.

Year 1

Noncurrent assets = Total assets – Current assets

= \$21,094 – \$3,092 = **\$18,002**

Total liabilities and owners' equity = Total assets

= **\$21,094**

Owners' equity = Total liabilities and owners' equity – (Current liabilities + Noncurrent liabilities)

= \$21,094 – (\$2,978 + \$9,286) = **\$8,830**

Current assets/current liabilities

= \$3,092/\$2,978 = **1.038**

Year 2

Total assets = Total liabilities and owners' equity

= **\$21,182**

Current assets = Total assets – Noncurrent assets

= \$21,182 – \$18,160 = **\$3,022**

Currrent liabilities = (Total liabilities and owners' equity – Owners' equity) – Noncurrent liabilities

= \$21,182 – \$8,868 – \$9,830 = **\$2,484**

Current assets/current liabilities
= $3,022/$2,484 = **1.217**

Year 3

Total assets = Current assets + Noncurrent assets

= $2,932 + $17,996 = **$20,928**

Total liabilities and owners' equity = Total assets

= **$20,928**

Current liabilities = Current assets/(Current assets/current liabilities)

= $2,932/1.023 = **$2,866**

Noncurrent liabilities = (Total liabilities and owners' equity – Owners' equity) – Current liabilities

= ($20,928 – $8,058) – $2,866 = **$10,004**

Year 4

Current assets = Current liabilities × (Current assets/current liabilities)

= $3,002 × 1.04 = **$3,122**

Total assets = Current assets + Noncurrent liabilities

= $3,122 + $20,286 = **$ 23,408**

Total liabilities and owners' equity = Total assets

= **$23,408**

Noncurrent liabilities = (Total liabilities and owners' equity – Owners' equity) – Current liabilities

= ($23,408 – $8,084) – $3,002 = **$12,322**

End-of-year for balance sheet items	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Current assets	$ 3,092	**$ 3,022**	$ 2,932	**$ 3,122**
Noncurrent assets	**18,002**	18,160	17,996	20,286
Total assets	21,094	**21,182**	**20,928**	**23,408**
Current assets/current liabilities	**1.038**	**1.217**	1.023	1.04
Current liabilities	2,978	**2,484**	**2,866**	3,002

Noncurrent liabilities	9,286	9,830	**10,004**	**12,322**
Owners' equity	**8,830**	8,868	8,058	8,084
Total liabilities and owners' equity	**21,094**	**21,182**	**20,928**	**23,408**

b.

The noncurrent assets (fixed assets)-to-current assets ratio stayed remarkably constant over the four-year period, varying between 5.8 (Years 1, 2, and 3) and 6.5 (Year 4). The large value of this ratio indicates that the firm belongs to a capital intensive industry.

The noncurrent liabilities-to-owners equity ratio kept increasing, from 1.05 (Year 1) to 1.52 (Year 4). This suggests that the firm is using more and more debt relative to equity in financing its growth.

6. Reconstructing an income statement.

Year 1

Gross profit = Sales – Cost of goods sold

= \$21,184 – \$16,916 = **\$4,268**

Operating profit = Gross profit – (Administrative and selling expenses + Research and development expenses)

= \$4,268 – (\$2,380 + \$380) = **\$1,508**

Earnings before interest and tax (EBIT) = Operating profit

= **\$1,508**

Earnings before tax (EBT) = Earnings before interest and tax (EBIT) + Interest income

= \$1,508 + \$24 = **\$1,532**

Earnings after tax (EAT) = Earnings before tax (EBT) – Income tax expense

= \$1,532 – \$444 = **\$1,088**

Year 2

Sales = Earnings after tax + Income tax expense – Interest income + Research and development expenses + Administrative and selling expenses + Cost of goods sold

= \$2,124 + \$864 – \$132 + \$504 + \$3,304 + \$24,372 = **\$31,036**

Gross profit = Sales – Cost of goods sold

= \$31,036 – \$24,372 = **\$6,664**

Operating profit = Gross profit – (Administrative and selling expenses + Research and development expenses)

= $6,664 – ($3,304 + $504) = **$2,856**

Earnings before interest and tax (EBIT) = Operating profit

= **$2,856**

Earnings before tax (EBT) = Earnings before interest and tax (EBIT) + Interest income

= $2,856 + $132 = **$2,988**

Earnings after tax (EAT) = Earnings before tax (EBT) – Income tax expense

= $2,988 - $864 = $2,124

Year 3

Earnings before tax (EBT) = Earnings after tax (EAT) + Income tax expense

= $3,776 + $1,696 = **$5,472**

Earnings before interest and tax (EBIT) = Earnings before tax (EBT) – Interest income

= $5,472 – $208 = **$5,264**

Operating profit = Earnings before interest and tax (EBIT)

= **$5,264**

Gross profit = Operating profit + Administrative and selling expenses + Research and development expenses

= $5,264 + $4,808 + $816 = **$10,888**

Cost of goods sold = Sales – Gross profit

= $49,308 – $10,888 = **$38,420**

	Year 1	**Year 2**	**Year 3**
Sales	$21,184	**$31,036**	$49,308
Cost of goods sold	16,916	24,372	**38,420**
Gross profit	**4,268**	**6,664**	**10,888**
Administrative and selling expenses	2,380	3,304	4,808

Research & development expenses	380	504	816
Operating profit	**1,508**	**2,856**	**5,264**
Earnings before interest and tax (EBIT)			
1,508	**2,856**	**5,264**	
Interest income	24	132	208
Earnings before tax (EBT)	**1,532**	**2,988**	**5,472**
Income tax expense	444	864	1,696
Earnings after tax (EAT)	**1,088**	2,124	3,776

7. Reconstructing an income statement.

Year 1

Gross profit = Sales – Cost of goods sold

= $21,087 – $16,182 = **$4,905**

Operating profit = Gross profit – Administrative and selling expenses

= $4,905 – $3,966 = **$939**

Earnings before interest and tax (EBIT) = Operating profit

= **$939**

Earnings before tax (EBT) = Earnings before interest and tax (EBIT) – Interest expense

= $939 – $75 = **$864**

Earnings after tax (EAT) = Earnings before tax (EBT) – Income tax expense

= $864 – $324 = **$540**

Year 2

Earnings before tax (EBT) = Earnings after tax (EAT) + Income tax expense

= $408 + $252 = **$660**

Earnings before interest and tax (EBIT) = Earnings before tax (EBT) + Interest expense

= $660 + $90 = **$750**

Operating profit = Earnings before interest and tax (EBIT)

= **$750**

Gross profit = Operating profit + Administrative and selling expenses

= $750 + $4,533 = **$5,283**

Sales = Gross profit + Cost of goods sold

= $5,283 + $17,709 = **$22,992**

Year 3

Earnings before tax (EBT) = Earnings after tax (EAT) + Income tax expense

= $312 + $192 = **$504**

Earnings before interest and tax (EBIT) = Earnings before tax (EBT) + Interest expense

= $504 + $81 = **$585**

Operating profit = Earnings before interest and tax (EBIT)

= **$585**

Gross profit = Operating profit + Administrative and selling expenses

= $585 + $5,547 = **$6,132**

Cost of goods sold = Sales – Gross profit

= $26,613 – $6,132 = **$20,481**

	Year 1	**Year 2**	**Year 3**
Sales	$21,087	**$22,992**	$26,613
Cost of goods sold	16,182	17,709	**20,481**
Gross profit	**4,905**	**5,283**	**6,132**
Administrative and selling expenses	3,966	4,533	5,547
Operating profit	**939**	**750**	**585**

Earnings before interest and tax (EBIT)	**939**	**750**	**585**
Interest expense	75	90	81
Earnings before tax (EBT)	**864**	**660**	**504**
Income tax expense	324	252	192
Earnings after tax (EAT)	**540**	408	312

8. Reconstructing a balance sheet.

	Beginning of year		End of year	
Assets				
Current assets				
Cash		$ 450		$ 500[7]
Accounts receivable		250		450[8]
Inventories		300		400[9]
Total current assets		**1,000**		**1,350**
Noncurrent assets				
Property, plant, and equipment				
Gross value	$3,000[1]		$4,000[10]	
Less: Accumulated depreciation	(1,000)	2,000	(1,200)[11]	2,800
Total noncurrent assets		**2,000**		**2,800**
Total assets		**$3,000**		**$4,150**
Liabilities and owners' equity				
Current liabilities				
Short-term debt		$ 400		$ 150[17]
Owed to banks	$300[3]		$50	
Current portion of long-term debt	100[2]		100[2]	
Accounts payable		300[6]		400[12]
Accrued expenses		100		300[13]
Total current liabilities		**800**		**850**
Noncurrent liabilities				
Long-term debt		500		400[14]
Total liabilities		**1,300**		**1,250**
Owners' equity		**1,700**[4]		**2,900**[15]
Total liabilities and owners' equity		**$3,000**[5]		**$4,150**[16]

[1] *16 + 17* [2] *5* [3] *18 – 5* [4] *21 + 22*

[5] *Equals total assets*
[6] *Total liabilities and owners' equity –18 – 19 – 20 – 21 – 22*
[7] *13 + 7* [8] *14 + 8* [9] *15 + 9*
[10] *Gross value, beginning of year + 4*
[11] *17 + 2*
[12] *Accounts payable, beginning of year + 10*
[13] *19 + 11 + 12* [14] *20 – 5*
[15] *Owners' equity, beginning of year + 1 + 3 – 6*
[16] *Equals total assets*
[17] *Total liabilities and owners' equity – Accounts payable – Accrued expenses – Long-term debt – Owners' equity.*

9. Constructing income statements and balance sheets.

VideoStores
Income Statement
For period ending 12/31/10

In thousands

Sales (items 3, 18)		**$ 320,000**
Cost of goods sold		(260,000)
Material cost (item 5)	$224,000	
Labor expenses (item 16)	36,000	
Selling, general, and administrative expenses (item 12)		(18,000)
Depreciation expense (item 9)		(9,000)
Earnings before interest and tax (EBIT)		**$ 33,000**
Net interest expense (items 6, 14, 25)		(3,000)
Earnings before tax (EBT)		**$ 30,000**
Income tax expense (item 2)		(10,800)
Earnings after tax (EAT)		**$ 19,200**
Dividends (item 20)		(9,200)
Addition to retained earnings		**$ 10,000**

VideoStores
Balance Sheets
December 31, 2009 and 2010

In thousands	**12/31/09**	**12/31/10**
Assets		
Cash (item 23)	$ 7,500	$ 11,400
Accounts receivable (items 7, 1)	32,000	38,400
Inventories (item 18)	28,000	32,000
Prepaid expenses (item 26)	1,500	2,200

Net fixed assets (items 4, 9, 19)	76,000	81,000
TOTAL	**$145,000**	**$165,000**
Liabilities and owners' equity		
Short-term debt (items 25, 17)	$ 7,000	$ 9,000
Accounts payable (items 8, 21, 11)	30,000	38,000
Accrued expenses (item 10)	4,000	2,000
Long-term debt (items 14, 17, 19)	23,000	25,000
Owners' equity (items 22, 15)	81,000	91,000
TOTAL	**$145,000**	**$165,000**

10. Forecasting financing needs.

a.

Financing needs	= Capital expenditures + Increase in current assets
Capital expenditures	= $1 million
Increase in current assets	= $9 million × Percentage increase in sales
	= $9 million × ($36 million – $27 million)/$27 million
	= $3 million
Financing needs	= $1 million + $3 million
	= **$4 million**

b.

Part of the $4 million of financial needs will come from the expected increase in accounts payable and in owners' equity. Since other current liabilities are expected to stay at the same level, the remaining difference is the extra borrowing needed at the end of next year.

Increase in accounts payable	= $2.7 million × $36 million/$27 million – $2.7 million
	= $0.9 million
Increase in owners' equity	= Earnings after tax – Dividends
	= .05 × $36 million – $800,000
	= $1 million
Increase in borrowing	= $4 million – ($0.9 million + $1 million) = $2.1 million