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Chapter 3 Understanding Financial Statements, Taxes, and Cash Flows

- 3-1.** To find the net income, we must subtract all relevant expenses from revenues: cost of goods sold, operating expenses, interest, and taxes. Following the template from Checkpoint 3.1, we find the following for Sandifer Manufacturing Company:

Sales	\$4,500,000	<u>notes</u>
Cost of Goods Sold	(\$3,375,000)	given
Gross Profits	\$1,125,000	
Operating Expenses		
Depreciation Expenses	(\$150,000)	given
Other Operating Expenses	(\$300,000)	
Total Operating Expenses	<u>(\$450,000)</u>	given
Operating Income (EBIT)	\$675,000	
Interest Expense	<u>\$0</u>	(none mentioned)
Earnings Before Taxes (EBT)	\$675,000	
Income Taxes (@35%)	<u>(\$236,250)</u>	=(\$675,000)*(.35)
Net Income	<u>\$438,750</u>	

Sandifer was able to generate \$438,750 in net income from its sales of \$4.5M. The \$438,750 is now available to pay out to shareholders (dividends), and/or to reinvest in the business (retained earnings).

- 3-2.** We just learned (in Problem 3-1) that Sandifer has \$438,750 to allocate to dividends and reinvestment. If it chooses to reinvest \$50,000, then it will have $(\$438,750 - \$50,000) = \$388,750$ to pay out as dividends (a $[\$388,750/\$438,750] = 88.6\%$ payout ratio).
- 3-3.** Marifield Steel Fabrication earned net income of \$500,000, then paid out a dividend of \$300,000. This left $(\$500,000 - \$300,000) = \$200,000$ to be retained by the firm to finance growth.

(As noted in the text, firms with taxable income greater than \$18.33M, the top of the 7th bracket, are indifferent between the progressive scheme and a flat rate of 35%.)

- 3-4. Barrington Enterprises earned \$4M in taxable income. Using the corporate tax rates given in Section 3.3 of the chapter, we find the following:

bracket	(marginal) taxable income	cumulative income taxed	marginal tax rate	tax liability	cumulative tax liability	average tax rate
#1	\$50,000	\$50,000	15%	\$7,500	\$7,500	15.00%
#2	\$25,000	\$75,000	25%	\$6,250	\$13,750	18.33%
#3	\$25,000	\$100,000	34%	\$8,500	\$22,250	22.25%
#4	\$235,000	\$335,000	39%	\$91,650	\$113,900	34.00%
#5	\$3,665,000	\$4,000,000	34%	\$1,246,100	\$1,360,000	34.00%

Barrington's total tax liability is \$1,360,000, for an average tax rate of $(\$1,360,000/\$4,000,000) = 34\%$.

The chart above is very close to that in Section 3.3. However, we will explain the entries, using the calculations for bracket #3 (highlighted in the chart) as an example:

Bracket #3 is shown in the text to apply to taxable income between \$75,001 through \$100,000. Thus, the bracket applies to \$25,000, which is what we have entered in the "(marginal) taxable income" column. The "cumulative income taxed" column shows \$100,000, meaning that when we have moved through this third bracket, we will have taxed our first \$100,000 of taxable income.

Since we move all the way through the third bracket, we generate $(\$25,000 \text{ taxable income in bracket}) * (34\% \text{ marginal tax rate}) = \$8,500$ in tax liability from that bracket. Added to the tax we owed for the first two brackets, this implies a total liability so far of $(\$13,750 + \$8,500) = \$22,250$. This tax liability is a weighted average of the rates whose brackets we've passed through: 15%, 25%, and 34%. This average equals $(\$22,250 \text{ tax liability so far})/(\$100,000 \text{ taxed so far}) = 22.25\%$, a value between 15% and 34%.

Note that the final average tax rate for the firm is 34%. Our average tax rate equals our marginal rate, even though our first dollars were taxed at 15% and 25%! What's going on?

The chart below shows how the fourth bracket's 5% surcharge (to 39%) takes away the benefits of the first two brackets. Column D shows how each bracket's taxable income increment would be taxed, if exposed to a flat rate of 34%. Column E then shows the difference between this hypothetical flat 34% tax and the actual, progressive rates. The first two brackets save the company \$11,750 relative to the flat 34%. However, this is exactly the amount recouped by the 5% surcharge as the company moves all the way through the fourth bracket. Companies that have more than \$335,000 in taxable income, but less than \$10M, are indifferent between the actual progressive system and a flat rate of 34%.

	A		B	C = A*B		D = A*(34%)	E = D - C	
bracket	(marginal) taxable income	cumulative income taxed	marginal tax rate	tax liability	cumulative tax liability	average tax rate	tax liability at 34%	\$ saved from actual tax rates
#1	\$50,000	\$50,000		\$7,500	\$7,500		\$17,000	\$9,500
#2	\$25,000	\$75,000	25%	\$6,250	\$13,750	18.33%	\$8,500	\$2,250
#3	\$25,000	\$100,000	34%	\$8,500	\$22,250	22.25%	\$8,500	\$0
#4	\$235,000	\$335,000	39%	\$91,650	\$113,900	34.00%	\$79,900	(\$11,750)
#5	\$3,665,000	\$4,000,000	34%	\$1,246,100	\$1,360,000	34.00%	\$1,246,100	\$0
							SUM =	\$0

(As noted in the text, firms with taxable income greater than \$18.33M, the top of the 7th bracket, are indifferent between the progressive scheme and a flat rate of 35%.)

3-5. Sanderson, Inc.'s situation before the dividends is:

Sales	\$3,000,000	<u>notes</u> given
Cost of Goods Sold	<u>(\$2,000,000)</u>	given
Gross Profits	\$1,000,000	
Operating Expenses		
Depreciation Expenses	(\$100,000)	given
Other Operating Expenses	(\$400,000)	given
Total Operating Expenses	<u>(\$500,000)</u>	given
Operating Income (EBIT)	\$500,000	
Interest Expense	<u>(\$150,000)</u>	given
Earnings Before Taxes (EBT)	\$350,000	

However, before we can determine the firm's tax liability, we must consider the tax due on its dividends received. The firm received \$50,000 from a company in which it owned less than 20%. Because of the dividends-received deduction, Sanderson only needs to pay taxes on $(1 - 0.70) = 30\%$ of these dividends. This will add $(30\%) * (\$50,000) = \$15,000$ to the firm's taxable income. (Dividends paid to the firm's own shareholders are made after taxes are paid. They therefore will not affect the firm's tax liability.)

Thus, we have:

Earnings Before Taxes (EBT)	\$350,000
Dividends Received, after 70% Dividends Received Deduction	<u>\$15,000</u>
Total Taxable Income	\$365,000

	(marginal) <u>bracket</u>	<u>taxable income</u>	<u>cumulative</u> <u>income taxed</u>	<u>marginal</u> <u>tax rate</u>	<u>tax liability</u>	<u>cumulative</u> <u>tax liability</u>	<u>average</u> <u>tax rate</u>
#1		\$50,000	\$50,000	15%	\$7,500	\$7,500	15.00%
#2		\$25,000	\$75,000	25%	\$6,250	\$13,750	18.33%
#3		\$25,000	\$100,000	34%	\$8,500	\$22,250	22.25%
#4		\$235,000	\$335,000	39%	\$91,650	\$113,900	34.00%
#5		\$30,000	\$365,000	34%	\$10,200	\$124,100	34.00%

Sanderson has \$365,000 in taxable income, so it will end up in the 5th tax bracket. Thus, as we saw in Problem 3-4, this means that Sanderson's average tax rate equals its marginal rate of 34%.

3-6. The statement below outlines the situation of the Robbins Corporation:

		<u>notes</u>
Sales	\$1,000,000	given
Cost of Goods Sold	(\$600,000)	given
Gross Profits	\$400,000	
Operating Expenses		
Depreciation Expenses	(\$50,000)	given
Cash Operating Expenses	(\$100,000)	given
Total Operating Expenses	<u>(\$150,000)</u>	given
Operating Income (EBIT)	\$250,000	
Interest Expense	(\$200,000)	given
Earnings Before Taxes (EBT)	<u>\$50,000</u>	
Earnings Before Taxes (EBT)	\$50,000	
Dividends Received, after 75% Dividends Received Deduction	<u>\$10,000</u>	
Total Taxable Income	\$60,000	

Because Robbins owns between 20% and 79% of a firm's shares, the dividend it receives from that firm are subject to a 75% dividends received deduction. Thus, Robbins is only taxed on $(100\% - 75\%) = 25\%$ of its dividends received, or $(25\%) * (\$40,000) = \$10,000$.

Adding Robbins' \$10,000 in taxable dividends to its \$50,000 in taxable income from operations gives the firm a total of \$60,000 in taxable income. We can now compute its tax liability as:

<u>bracket</u>	<u>(marginal) taxable income</u>	<u>cumulative income taxed</u>	<u>marginal tax rate</u>	<u>tax liability</u>	<u>cumulative tax liability</u>	<u>average tax rate</u>
#1	\$50,000	\$50,000	15%	\$7,500	\$7,500	15.00%
#2	\$10,000	\$60,000	25%	\$2,500	\$10,000	16.67%

Robbins finishes in the middle of the second bracket, so its marginal tax rate (the rate on its next dollar of income, which will still be in the second bracket) is 25%. Its average tax rate is the weighted average of the \$50,000 taxed in the first bracket at 15%, and the $(\$60,000 - \$50,000) = \$10,000$ taxed at 25% in the second bracket: $(\$50,000/\$60,000) * (15\%) + (\$10,000/\$60,000) * (25\%) = (0.8333) * (15\%) + (0.1667) * (25\%) = 16.67\%$.

As for additional action: Robbins made \$1M in sales, but generated only $(\$50,000 - \$10,000 \text{ tax liability}) = \$40,000$ in after-tax (net) income (ignoring the dividends it received). It may want to search for operating efficiencies to improve its profit margins. Its interest expenses, in particular, seem high.

Note that we did not consider Robbins' dividend payments to its own stockholders here, since those payments are made after taxes are paid.

3-7. For J.P. Hulett, we have the following statement calculating taxable income:

Sales		\$4,000,000	<u>notes</u> given
Cost of Goods Sold		<u>(\$3,000,000)</u>	
Gross Profits		\$1,000,000	given
Operating Expenses			
Depreciation Expenses	(\$350,000)		given
Other Operating Expenses	<u>(\$500,000)</u>		given
Total Operating Expenses		<u>(\$850,000)</u>	
Operating Income (EBIT)		\$150,000	
Interest Expense		<u>\$0</u>	(none was mentioned)
Earnings Before Taxes (EBT)		\$150,000	
Earnings Before Taxes (EBT)		\$150,000	
Dividends Received, after 100% Dividends Received Deduction		<u>\$0</u>	
Total Taxable Income		\$150,000	

Since Hulett owns more than 80% of the shares of the firm from which it received dividends, none of the dividends are taxable to Hulett, and we can ignore them.

Given Hulett's taxable income of \$150,000, we can find its tax liability as follows:

	<u>(marginal)</u> <u>bracket</u>	<u>taxable income</u>	<u>cumulative</u> <u>income taxed</u>	<u>marginal</u> <u>tax rate</u>	<u>tax liability</u>	<u>cumulative</u> <u>tax liability</u>	<u>average</u> <u>tax rate</u>
#1		\$50,000	\$50,000	15%	\$7,500	\$7,500	15.00%
#2		\$25,000	\$75,000	25%	\$6,250	\$13,750	18.33%
#3		\$25,000	\$100,000	34%	\$8,500	\$22,250	22.25%
#4		\$50,000	\$150,000	39%	\$19,500	\$41,750	27.83%

Hulett's taxable income of \$150,000 takes it up to the fourth bracket, where its marginal tax rate (tax on next dollar of income) is 39%. Its average tax rate is a weighted average of the tax rates from the first through fourth bracket: 15%, 25%, 34%, and 39%. For Hulett, this average is $(\$41,750/\$150,000) = 27.83\%$. (If Hulett had made it all the way through the fourth bracket, its average tax rate would have been 34%, as we discussed in Problem 3-4.)

3-8. The statement below shows how we can compute the taxable income for G.R. Edwin, Inc.:

Sales		\$6,000,000	<u>notes</u> given
Cost of Goods Sold		<u>(\$3,000,000)</u>	given
Gross Profits		\$3,000,000	
Operating Expenses		<u>(\$2,600,000)</u>	given
Operating Income (EBIT)		\$400,000	
Interest Expense		<u>(\$30,000)</u>	given
Earnings Before Taxes (EBT)		\$370,000	

Edwin therefore has taxable income of \$370,000. Using the corporate tax tables from the chapter, we can therefore determine the tax liability as:

bracket	(marginal) taxable income	cumulative income taxed	marginal tax rate	tax liability	cumulative tax liability	average tax rate
#1	\$50,000	\$50,000	15%	\$7,500	\$7,500	15.00%
#2	\$25,000	\$75,000	25%	\$6,250	\$13,750	18.33%
#3	\$25,000	\$100,000	34%	\$8,500	\$22,250	22.25%
#4	\$235,000	\$335,000	39%	\$91,650	\$113,900	34.00%
#5	\$35,000	\$370,000	34%	\$11,900	\$125,800	34.00%

Since the firm's taxable income moved it beyond the fourth bracket and into the fifth, Edwin's average tax rate is 34% (\$125,800 tax liability/\$370,000 taxable income), as is its marginal tax rate. Remember that the fourth bracket has a surcharge that gradually takes away the benefits of initially moving through the 1st (15%) and 2nd (25%) brackets. Moving all the way through the fourth bracket, as Edwin did, means that all of those low-rate benefits are taken away, and the firm is left as if it had paid a flat rate of 34% from the beginning.

- 3-9.** Meyer Inc. has taxable income of \$300,000, which is in the fourth tax bracket. Since Meyer won't move all the way through this bracket (its upper limit is \$335,000, higher than Meyer's EBT), its marginal tax rate will be the 4th bracket's rate, 39%. Also, since Meyer will not have moved all the way through the 4th bracket, it will not have all of the benefits of the low-rate 1st and 2nd brackets taken away; its average tax rate will therefore be less than 34%. We can find its tax liability and average tax rate as follows:

bracket	(marginal) taxable income	cumulative income taxed	marginal tax rate	tax liability	cumulative tax liability	average tax rate
#1	\$50,000	\$50,000	15%	\$7,500	\$7,500	15.00%
#2	\$25,000	\$75,000	25%	\$6,250	\$13,750	18.33%
#3	\$25,000	\$100,000	34%	\$8,500	\$22,250	22.25%
#4	\$200,000	\$300,000	39%	\$78,000	\$100,250	33.42%
		EBT: given				

Meyer pays a total of \$100,250 in taxes, on a taxable income of \$300,000. Its average tax rate is therefore $\left(\frac{\$100,250}{\$300,000}\right) = 33.42\%$.

- 3-10.** Boisjoly Productions has \$19M of taxable income. This puts the firm into the very highest tax bracket, the eighth, in which the marginal tax rate is 35%. In earlier problems (e.g., 3-8), we saw that firms whose taxable income fell into the 5th bracket had their low-rate brackets' benefits taken away, leaving them with a flat 34% tax rate. Firms like Boisjoly that make it all the way into the 8th bracket have a similar but more severe situation: They have all of their low-rate benefits taken away, leaving them with a flat 35% rate.

	A	B	C	D = A*C	E	F = E/B
bracket	(marginal) taxable income	cumulative income taxed	marginal tax rate	tax liability	cumulative tax liability	average tax rate
#1	\$50,000	\$50,000	15%	\$7,500	\$7,500	15.00%
#2	\$25,000	\$75,000	25%	\$6,250	\$13,750	18.33%
#3	\$25,000	\$100,000	34%	\$8,500	\$22,250	22.25%
#4	\$235,000	\$335,000	39%	\$91,650	\$113,900	34.00%
#5	\$9,665,000	\$10,000,000	34%	\$3,286,100	\$3,400,000	34.00%
#6	\$5,000,000	\$15,000,000	35%	\$1,750,000	\$5,150,000	34.33%
#7	\$3,333,333	\$18,333,333	38%	\$1,266,667	\$6,416,667	35.00%
#8	\$666,667	\$19,000,000	35%	\$233,333	\$6,650,000	35.00%

How does this happen? We can track the benefits from the lower-rate brackets and the costs of the higher-rate brackets as shown below:

bracket	A (marginal) taxable income	B cumulative income taxed	C = A*B marginal tax rate	C tax liability	D = A*(34%) cumulative tax liability	average tax rate	D = A*(34%) tax liability at 35%	E = D - C \$ saved from actual tax rates	cumulative savings
#1	\$50,000	\$50,000	15%	\$7,500	\$7,500	\$0	\$17,500	\$10,000	\$10,000
#2	\$25,000	\$75,000	25%	\$6,250	\$13,750	18.33%	\$8,750	\$2,500	\$12,500
#3	\$25,000	\$100,000	34%	\$8,500	\$22,250	22.25%	\$8,750	\$250	\$12,750
#4	\$235,000	\$335,000	39%	\$91,650	\$113,900	34.00%	\$82,250	(\$9,400)	\$3,350
#5	\$9,665,000	\$10,000,000	34%	\$3,286,100	\$3,400,000	34.00%	\$3,382,750	\$96,650	\$100,000
#6	\$5,000,000	\$15,000,000	35%	\$1,750,000	\$5,150,000	34.33%	\$1,750,000	\$0	\$100,000
#7	\$3,333,333	\$18,333,333	38%	\$1,266,667	\$6,416,667	35.00%	\$1,166,667	(\$100,000)	\$0
#8	\$666,667	\$19,000,000	35%	\$233,333	\$6,650,000	35.00%	\$233,333	\$0	\$0
SUM =								\$0	

Column D in the chart above calculates the tax liability for a bracket, assuming that the rate for that bracket is 35%. Column E then compares that hypothetical 35% tax liability with the actual liability for the bracket. For brackets whose rates are less than 35%, column E therefore shows a savings—a benefit from paying the actual, lower rate rather than 35%. However, in brackets #4 and #7, column E is negative. In these brackets, the marginal rates are greater than 35%. These brackets are taking back the benefits of the lower-rate brackets. If a taxpayer passes all the way through the 7th bracket, as Boisjoly does, then all of the low-rate benefits are taken away. The taxpayer whose taxable income is greater than \$18.33M pays a flat 35%.

3-11. Caraway Seed’s balance sheet is shown below:

<u>ASSETS</u>		<u>LIABILITIES</u>	
Current Assets	\$50,000	Current Liabilities	\$30,000
Net Fixed Assets	\$250,000	Long-Term Debt	<u>\$100,000</u>
		TOTAL LIABILITIES	\$130,000
OWNERS' EQUITY			
		STOCKHOLDERS' EQUITY	\$170,000 (plug)
TOTAL ASSETS	<u>\$300,000</u>	TOTAL L & OE	<u>\$300,000</u>

- A. Caraway’s total assets are the sum of its current (short-term) assets of \$50,000 and its fixed (long-term) assets of \$250,000: \$300,000. Since this is what Caraway has, this is the amount for that it has received funding. Caraway uses two types of funding: debt and equity. It therefore must be true that its debt funding received plus its equity funding equals the total, \$300,000. We are told that Caraway has \$30,000 in current (short-term) debt, plus \$100,000 in long-term debt. It therefore has received a total of $(\$30,000 + \$100,000) = \$130,000$ in debt funding. Since it has \$300,000 in assets, it must be that $(\$300,000 - \$130,000) = \$170,000$ in funding has come from equity. (Once we know total assets and total liabilities, then, total equity is just a plug figure.)
- B. If we focus on current assets and liabilities, we can find net working capital, which is defined in equation 3-5 as:

$$\begin{aligned} \text{net working capital} &= \text{current assets} - \text{current liabilities} \\ &= \$50,000 - \$30,000 = \$20,000. \end{aligned}$$

This is the amount of liquid assets that Caraway has, above and beyond what it needs to make payments over the next year. Given that its current liabilities are \$30,000, a cushion of \$20,000 seems to imply that Caraway is very liquid.

- C. Knowing that the firm’s \$30,000 in current liabilities is comprised of \$20,000 in accounts payable and \$10,000 in notes payable does not affect working capital, which is based on total current liabilities and assets. (See Figure 3.1, where working capital is defined graphically; current liabilities there include A/P and N/P.)

3-12. First, let’s categorize the accounts we were given:

account	amount	TYPE OF ACCOUNT						STATEMENT		
		current asset	fixed asset	current liability	long-term debt	equity	revenue	expense	balance sheet	income statement
inventory	\$6,500	X							X	
common stock	\$45,000					X			X	
cash	\$16,550	X							X	
operating expenses	\$1,350							X		X
short-term notes payable	\$600			X					X	
interest expense	\$900							X		X
depreciation expense	\$500							X		X
sales	\$12,800						X			X
accounts receivable	\$9,600	X							X	
accounts payable	\$4,800			X					X	
long-term debt	\$55,000				X				X	
cost of goods sold	\$5,750							X		X
buildings & equipment	\$122,000		X						X	
accumulated depreciation	\$34,000		contra-asset						X	
taxes	\$1,440							X		X
general & administrative expense	\$850							X		X
retained earnings	PLUG					X			X	

Note that expenses and revenues go on the income statement, while assets, liabilities, and equity go on the balance sheet.

As shown on the next page, we will find retained earnings as the plug figure that will equate total assets with total liabilities and owners’ equity. We use the following 2-step process:

<u>STEP 1</u>	<u>STEP 2</u>
total assets = \$120,650	total equity = \$60,250
less total liabilities = (\$60,400)	less common stock = (\$45,000)
total equity = \$60,250	retained earnings = \$15,250

Now that we know which accounts belong to which statement, we can create the statements as follows:

BELMOND, INC.		
INCOME STATEMENT (for year ended mm/dd/yy)		
Sales		\$12,800
Cost of Goods Sold		<u>(\$5,750)</u>
Gross Profits		\$7,050
Operating Expenses		
Depreciation Expenses	(\$500)	
Operating Expenses	(\$1,350)	
General and Administrative Expenses	<u>(\$850)</u>	
Total Operating Expenses		<u>(\$2,700)</u>
Operating Income (EBIT)		\$4,350
Interest Expense		<u>(\$900)</u>
Earnings Before Taxes (EBT)		\$3,450
Taxes		<u>(\$1,440)</u>
Net Income		\$2,010

BELMOND, INC.			
BALANCE SHEET (as of mm/dd/yy)			
<u>ASSETS</u>		<u>LIABILITIES</u>	
<u>Current Assets</u>		<u>Current Liabilities</u>	
Cash	\$16,550	Accounts Payable	\$4,800
Accounts Receivable	\$9,600	Short-term Notes Payable	<u>\$600</u>
Inventory	<u>\$6,500</u>	Total Current Liabilities	\$5,400
Total Current Assets	\$32,650		
Buildings & Equipment	\$122,000	Long-Term Debt	<u>\$55,000</u>
Less: Accumulated Depreciation	<u>(\$34,000)</u>	Total Liabilities	\$60,400
Total Fixed Assets	<u>\$88,000</u>		
		<u>OWNERS' EQUITY</u>	
		Common Stock	\$45,000
		Retained Earnings	<u>\$15,250</u> (plug)
		Total Common Stockholders' Equity	<u>\$60,250</u>
TOTAL ASSETS	<u>\$120,650</u>	TOTAL L & OE	<u>\$120,650</u>

Now that we've identified Belmont's current assets and current liabilities, we can find the firm's net working capital as the difference between them:

$$\begin{aligned}
 \text{current assets} &= \$32,650 \\
 \text{current liabilities} &= \underline{(\$5,400)} \\
 \text{net working capital} &= \$27,250
 \end{aligned}$$

If I were asked to assess Belmont’s financial position, I’d say:

- It has adequate liquidity, given that its current assets are \$32,650 while current liabilities are only \$5,400—resulting in a strong net working capital position of \$27,250.
- It is managing its costs well: COGS is only 45% of sales; operating expenses are 21%; interest expenses are 7%; net income is almost 16%.
- Its retained earnings seem relatively low, which is odd, given the rest of the results.
- Its cash seems extremely high, given its sales (annual sales < cash!).

Overall, Belmont seems to be well managed and in good financial shape.

3-13. We first classify Warner’s accounts as follows:

account	amount	TYPE OF ACCOUNT							STATEMENT	
		current asset	fixed asset	current liability	long-term debt	equity	revenue	expense	balance sheet	income statement
depreciation expense	\$66,000							X		X
cash	\$225,000	X							X	
long-term debt	\$334,000				X				X	
sales	\$573,000						X			X
accounts payable	\$102,000			X					X	
general & administration expense	\$79,000							X		X
buildings & equipment	\$895,000		X						X	
notes payable	\$75,000			X					X	
accounts receivable	\$167,500	X							X	
interest expense	\$4,750							X		X
accrued expenses	\$7,900			X					X	
common stock	\$289,000					X			X	
cost of goods sold	\$297,000							X		X
inventory	\$99,300	X							X	
taxes	\$50,500							X		X
accumulated depreciation	\$263,000		contra-asset						X	
taxes payable	\$53,000			X					X	
retained earnings	\$262,900					X			X	

Expenses and revenues belong on the income statement; assets, debt, and equity belong on the balance sheet. Note that accrued expenses are a current liability—this represents an accumulation of expenses taken on the periodic income statements, and are the amount the firm must pay (thus, a liability). (The same applies to taxes payable.)

Given these assignments, we can create the firm’s balance sheet and income statement as shown on the next page.

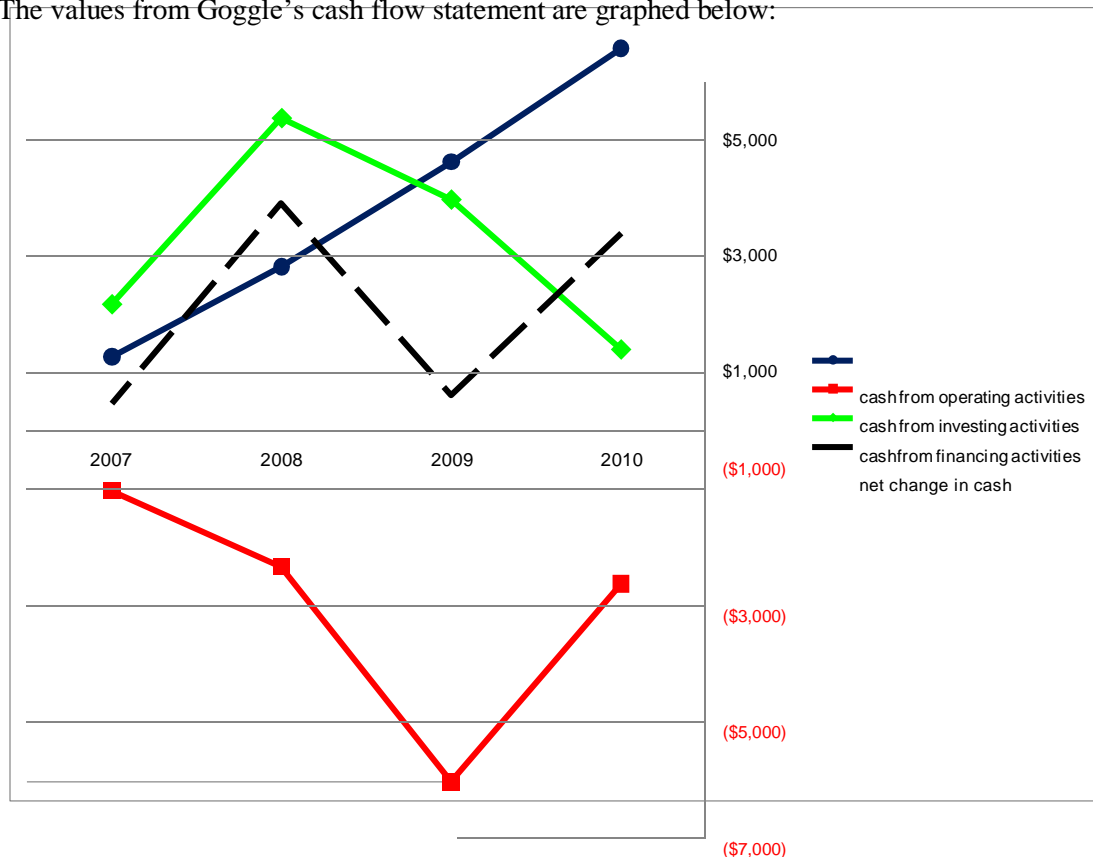
ASSETS		LIABILITIES	
<u>Current Assets</u>		<u>Current Liabilities</u>	
Cash	\$225,000	Accounts Payable	\$102,000
Accounts Receivable	\$167,500	Accrued Expenses	\$7,900
Inventory	<u>\$99,300</u>	Taxes Payable	\$53,000
Total Current Assets	\$491,800	Notes Payab	<u>\$75,000</u>
		Total Current Liabilities	\$237,900
Buildings & Equipment	\$895,000		
Less: Accumulated Depreciation	<u>(\$263,000)</u>	Long-Term Debt	<u>\$334,000</u>
Total Fixed Assets	<u>\$632,000</u>	Total Liabilities	\$571,900
		OWNERS' EQUITY	
		Common Stock	\$289,000
		Retained Earnings	<u>\$262,900</u>
		Total Common Stockholders' Equity	<u>\$551,900</u>
TOTAL ASSETS	<u>\$1,123,800</u>	TOTAL L & OE	<u>\$1,123,800</u>

WARNER COMPANY
INCOME STATEMENT (for year ended mm/dd/yy)

Sales		\$573,000	
Cost of Goods Sold		<u>(\$297,000)</u>	51.83%
Gross Profits		\$276,000	48.17%
Operating Expenses			
Depreciation Expenses	(\$66,000)		11.52%
General and Administrative Expenses	<u>(\$79,000)</u>		13.79%
Total Operating Expenses		<u>(\$145,000)</u>	25.31%
Operating Income (EBIT)		\$131,000	22.86%
Interest Expense		<u>(\$4,750)</u>	0.83%
Earnings Before Taxes (EBT)		\$126,250	22.03%
Taxes		<u>(\$50,500)</u>	8.81%
Net Income		<u>\$75,750</u>	13.22%

Warner’s financials reveal no glaring, severe problems. The firm seems to be doing well managing its expenses. Its COGS is about 52% of sales; operating expenses are 25%; net income is 13%. It is adequately liquid: Its net working capital is \$253,900 (current assets of \$491,800 are over 2 × current liabilities of \$237,900). In fact, the firm may be too liquid: Cash is 20% of total assets, which seems high, especially since αλλ of the current liabilities total just over 21%. The firm is running lean on inventory (9% of assets), which is positive. Long-term debt is only 30% of assets; interest expense is less than 1% of sales. (Given that the firm’s tax bill was almost 9% of sales, it could probably benefit from more leverage.)

3-14. The values from Goggle’s cash flow statement are graphed below:



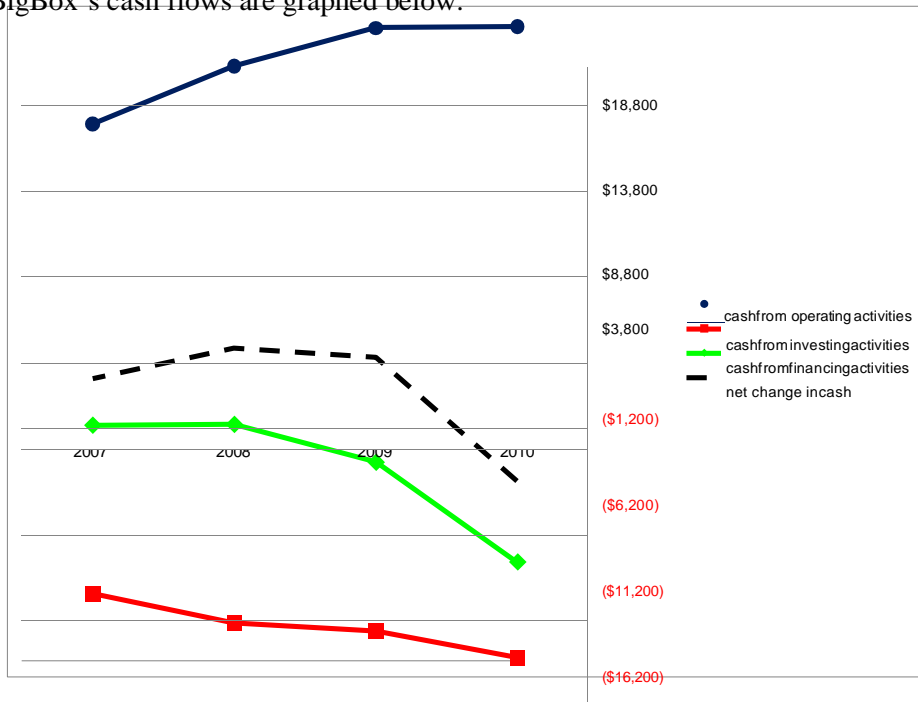
- A. The black dashed curve is the net change in cash. In 2007 and 2009, this goes slightly negative. However, this is not from operations: The blue curve shows cash from operating activities, which is increasing steadily throughout the period.
- B. Instead, the net cash is negative because Goggle has been investing heavily in capital assets, especially in 2009 (see the red curve). In fact, over the last four years, Goggle has invested \$15,900 in capex (this is just the sum of net “cash from investing activities”).
- C. Looking at the green curve, we can track Goggle’s activities in the financial markets. The firm has issued stock in each of the four years (sum of stock issuance = \$8024). This alone was insufficient to pay for its capex, but nonetheless was a major source of funds. They have issued no new debt; in fact, they have retired small amounts of debt over the last two years (total of \$7) and have earned \$1005 in interest cash flow. (The rest of the cash for the capital assets therefore came from operations.)
- D. Thus over the last four years, Goggle’s management has spent heavily on new capital assets, financing those purchases with operating cash flow plus significant inflows from stock sales. The largest of these stock sales occurred in 2008, with issuance of \$4400. This has tapered off to only \$24 in the most recent year; however, as their operating cash flows have ramped up to \$5600 in 2010, exceeding their capital investment (although its capital expenditures were still fairly strong in 2010, at \$3600).

The firm has paid no dividends over the period, which has preserved cash for capital investment. The firm appears to be in the “growth” phase of its lifecycle: high capex, low dividends.

The firm has had increasing cash flow from operations: Net income, depreciation, and working capital changes have all contributed positively. (We should not be surprised by the depreciation, at least given the heavy investment in new assets.) The net income growth is very positive, as is the ability of the firm to decrease its working capital investment.

Goggle has also received interest inflows over the last two years, which, at \$400 and \$600, were noticeable contributors to the firm’s cash flows.

3-15. BigBox’s cash flows are graphed below:



- A. BigBox has generated positive cash flows from operations, as shown by the blue curve. However, this growth has slowed significantly lately, with 2010's operating cash flows being almost indistinguishable from 2009's.
- B. The company has made significant capital investments over each of the four years, increasing the amount every year. The total over the full period is \$56,800.
- C. These investments have not been financed with net new issuance in the financial markets, since cash from financing activities has been negative in each of the four years. (Capex therefore came from operating cash flow, the only significant source of cash the firm has.) The firm has paid a large dividend each year (with a four-year total of \$11,100), and has also retired stock each year. There have been some financing cash inflows from debt issuance—the firm has issued debt in every year except 2009, when a nominal amount (\$100) was retired (issuance in the other three years totaled \$9600, almost sufficient to pay the firm's dividends). The firm is therefore substituting debt for equity.

Thus it appears that over the last four years, the firm has:

- Generated steady growth in net income, and some growth in depreciation cashflow
- Received positive cash flow from reductions in working capital investments
- Made significant and growing expenditures on capital assets (of between 123% and 127% of net income each year)
- Paid steadily growing dividends (of between 22% and 28% of net income)
- Retired stock each year, with the largest retirement in the most recent year, while issuing debt (although the debt amounts issued were always less than the stock amounts retired)

Since the firm's operating cash flows were insufficient in 2010 to support its aggressive capex and stock retirements, its net change in cash was significantly negative for this year.

This firm, unlike Goggle in Problem 3-14, appears to be in its mature phase, despite its capital expenditures. Rather than the rapid growth of a young firm, this firm is closer to a mature, steady state.

- 3-16.** The first part of the question regarding the quality of earnings ratio appears to be for a different year than presented in the table provided for parts a) and b). Using the information provided in introductory portion of the question we then calculate as follows:

$$\begin{aligned} \text{Quality of earnings ratio} &= \text{cash flow from operations} / \text{net income} \\ &= \$575,000 / \$750,000 = .7667 = 76.67\% \end{aligned}$$

Without further detail, as given in the Boswell example of the text, we can only say that the firm depended on about 77% of its cash flow from its operating income stream and about 23% from non-operating sources.

- a) Part a) only details information that is used to answer Part b).
- b) In order to calculate the average capital acquisitions ratio for Kabutell, we can use the adapted form of equation 3-9 that was used in the Boswell example on page 64 of the text.

$$\begin{aligned} \text{Capital acquisitions ratio} &= \\ \text{3-yr avg cash flow from operations} / \text{3-yr avg cash paid for CAPEX} &= \\ \{(\$478 + \$403 + \$470) / 3\} / \{(\$459 + \$447 + \$456) / 3\} &= 0.9919 = 99.19\% \end{aligned}$$

This means that for the last 3 years, Kabutell was able to finance 99.19% of its capital expenditures with operating cash flow.

3-17. Using the link to Yahoo Finance <http://finance.yahoo.com/> the following statement of cash flows were found for Home Depot and Lowes:

The Home Depot, Inc. (HD) - NYQ

[+ Add to Portfolio](#)

79.22 +0.93(1.19%) 4:00PM EDT | After Hours : **79.22** 0.00 (0.00%) 5:19PM EDT

Cash Flow

Get Cash Flow for:

View: [Annual Data](#) | [Quarterly Data](#)

All numbers in thousands

Period Ending	Feb 2, 2013	Jan 28, 2012	Jan 29, 2011
Net Income	4,535,000	3,883,000	3,338,000
Operating Activities, Cash Flows Provided By or Used In			
Depreciation	1,684,000	1,682,000	1,718,000
Adjustments To Net Income	315,000	215,000	214,000
Changes In Accounts Receivables	(143,000)	(170,000)	(102,000)
Changes In Liabilities	726,000	405,000	(269,000)
Changes In Inventories	(350,000)	256,000	(355,000)
Changes In Other Operating Activities	208,000	380,000	41,000
Total Cash Flow From Operating Activities	6,975,000	6,651,000	4,585,000
Investing Activities, Cash Flows Provided By or Used In			
Capital Expenditures	(1,312,000)	(1,221,000)	(1,096,000)
Investments	-	-	-
Other Cash flows from Investing Activities	(120,000)	92,000	84,000
Total Cash Flows From Investing Activities	(1,432,000)	(1,129,000)	(1,012,000)
Financing Activities, Cash Flows Provided By or Used In			
Dividends Paid	(1,743,000)	(1,632,000)	(1,569,000)
Sale Purchase of Stock	(3,200,000)	(3,164,000)	(2,504,000)
Net Borrowings	(32,000)	966,000	(31,000)
Other Cash Flows from Financing Activities	(59,000)	(218,000)	(347,000)
Total Cash Flows From Financing Activities	(5,034,000)	(4,048,000)	(4,451,000)
Effect Of Exchange Rate Changes	(2,000)	(32,000)	2,000
Change In Cash and Cash Equivalents	509,000	1,474,000	(878,000)

Lowe's Companies Inc. (LOW) - NYQ

[Add to Portfolio](#)**43.50** ↑ **0.72(1.68%)** 4:00PM EDT | After Hours : **43.50** 0.00 (0.00%) 5:19PM EDT**Cash Flow**Get Cash Flow for: View: [Annual Data](#) | [Quarterly Data](#)

All numbers in thousands

Period Ending	Jan 31, 2013	Feb 2, 2012	Jan 27, 2011
Net Income	1,959,000	1,839,000	2,010,000
Operating Activities, Cash Flows Provided By or Used In			
Depreciation	1,623,000	1,579,000	1,684,000
Adjustments To Net Income	91,000	629,000	89,000
Changes In Accounts Receivables	-	-	-
Changes In Liabilities	420,000	210,000	279,000
Changes In Inventories	(244,000)	(33,000)	(64,000)
Changes In Other Operating Activities	(87,000)	125,000	(146,000)
Total Cash Flow From Operating Activities	3,762,000	4,349,000	3,852,000
Investing Activities, Cash Flows Provided By or Used In			
Capital Expenditures	(1,211,000)	(1,829,000)	(1,329,000)
Investments	174,000	455,000	(866,000)
Other Cash flows from Investing Activities	134,000	(63,000)	11,000
Total Cash Flows From Investing Activities	(903,000)	(1,437,000)	(2,184,000)
Financing Activities, Cash Flows Provided By or Used In			
Dividends Paid	(704,000)	(647,000)	(571,000)
Sale Purchase of Stock	(4,044,000)	(2,837,000)	(2,514,000)
Net Borrowings	1,393,000	956,000	1,433,000
Other Cash Flows from Financing Activities	22,000	(21,000)	1,000
Total Cash Flows From Financing Activities	(3,333,000)	(2,549,000)	(1,651,000)
Effect Of Exchange Rate Changes	1,000	(1,000)	3,000
Change In Cash and Cash Equivalents	(473,000)	362,000	20,000

	2013	2012	2011
Home Depot			
Net Income	4,535,000	3,883,000	3,338,000
CF from Operating Activities	6,975,000	6,651,000	4,585,000
CAPEX	1,312,000	1,221,000	1,096,000
Quality of Earnings Ratio = CF from Oper / Net Income	153.80%	171.29%	137.36%
Capital Acquisitions Ratio = CF From Oper / Cash Paid for CAPEX	531.63%	544.72%	418.34%
	2013	2012	2011
Lowes			
Net Income	1,959,000	1,839,000	2,010,000
CF from Operating Activities	3,762,000	4,349,000	3,852,000
CAPEX	1,211,000	1,829,000	1,329,000
Quality of Earnings Ratio = CF from Oper / Net Income	192.04%	236.49%	191.64%
Capital Acquisitions Ratio = CF From Oper / Cash Paid for CAPEX	310.65%	237.78%	289.84%

- a) As calculated above, the quality of earnings ratio for both Home Depot and Lowes is high and above 100%. For Home Depot, the values are 153.80%, 171.29%, and 137.26%, respectively. For Lowes the values are 192.04%, 236.49%, and 191.64%, respectively. These numbers suggest that the quality of earnings for both firms is very high.
- b) Home Depot has a much larger amount for an adjustment to net income as well as a positive and large adjustment to operating activities. While either of those adjustments may be innocuous, a serious investor would need to understand both of the items.

- c) As calculated above, the quality of earnings ratio for both Home Depot and Lowes is high and above 100%. For Home Depot, the values are 531.63%, 544.72%, and 418.34%, respectively. For Lowes the values are 310.65%, 237.78%, and 289.84%, respectively.
- d) Home Depot is able to cover its CAPEX through its cash flow a greater number of times, but both firms have the means to expand their CAPEX significantly. Lowe's appears to have issued debt in 2013 and would therefore have been more active in the capital markets than Home Depot.