

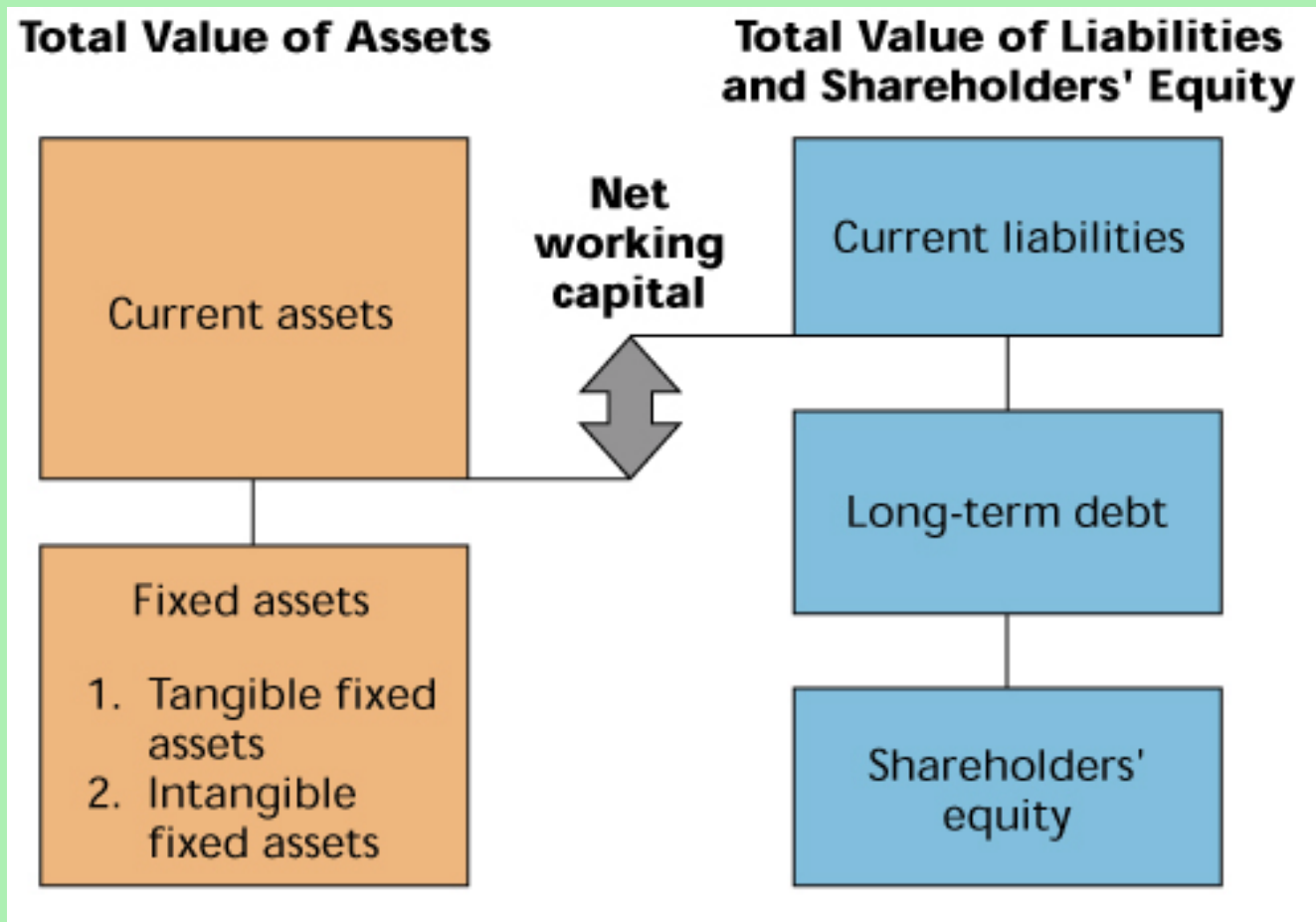
Chapter 2

Financial Statements, Taxes, and Cash Flow

Chapter Organization

- 2.1 The Balance Sheet
- 2.2 The Income Statement
- 2.3 Cash Flow
- 2.4 Taxes
- 2.5 Capital Cost Allowance
- 2.6 Summary and Conclusions

T2.2 The Balance Sheet (Figure 2.1)



T2.2 The Balance Sheet

■ Components

- ◆ Assets (Current & Long-Term)
- ◆ Liabilities (Current & Long-Term)
- ◆ Owners Equity

■ Key concepts

- ◆ Liquidity
- ◆ Net Working Capital
 - Current Assets minus Current Liabilities
- ◆ Debt vs. Equity
- ◆ Market vs. Book Value

T2.3 Income Statement

■ Components

- ◆ Revenues
- ◆ Expenses
 - Cash and non-cash
 - Operating and non-operating
- ◆ Net Income
- ◆ Earnings per share
- ◆ Dividends

T2.4 Cash Flow

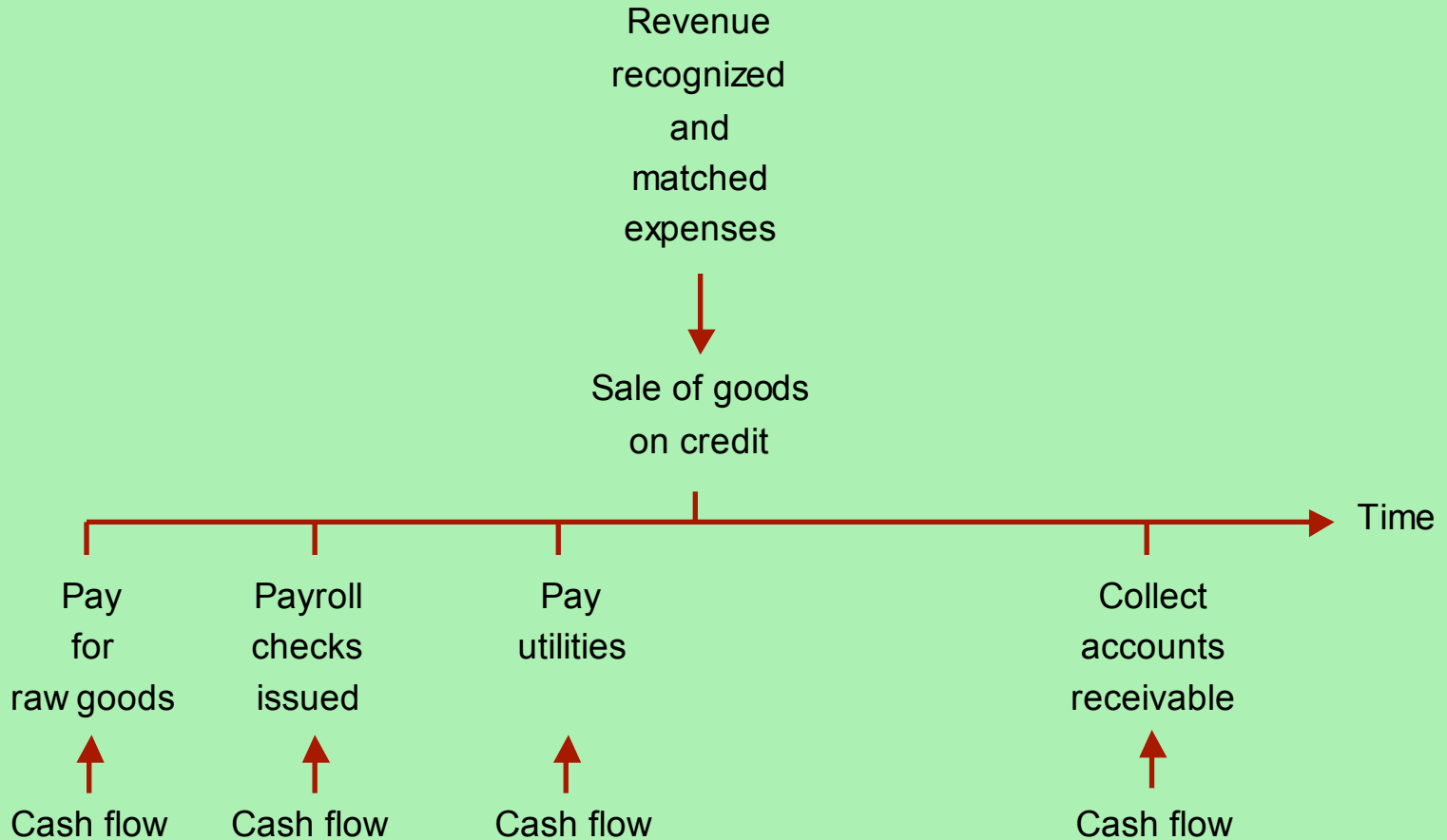
- Cash flows are essential to valuation
 - ◆ Accounting methods give an estimate of the economic value of transactions
 - ◆ In Finance, the main concern is the timing of cash flows.
 - ◆ Since the income statement includes non-cash items, we will have to adjust it to get information on cash flows
 - ◆ Balance sheet activity plays an important role in the determination of the cash balance (e.g.)

Collections on accounts receivable

Borrowing on accounts payable

- Work with reported financial statements to find cash flow.

T2.4 GAAP versus Cash Flow Time Line



T2.5 Cash Flow Example

Balance Sheet

	<u>Beg</u>	<u>End</u>		<u>Beg</u>	<u>End</u>
Cash	\$100	\$150	A/P	\$100	\$150
A/R	200	250	N/P	<u>200</u>	<u>200</u>
Inv	<u>300</u>	<u>300</u>	C/L	<u>300</u>	<u>350</u>
C/A	<u>\$600</u>	<u>\$700</u>	LTD	<u>\$400</u>	<u>\$420</u>
NFA	<u>400</u>	<u>500</u>	C/S	50	60
			R/E	<u>250</u>	<u>370</u>
				<u>\$300</u>	<u>\$430</u>
Total	<u>\$1000</u>	<u>\$1200</u>	Total	<u>\$1000</u>	<u>\$1200</u>

T2.5 Cash Flow Example (continued)

Income Statement

Sales	\$2000
Costs	1400
Depreciation	<u>100</u>
EBIT	500
Interest	<u>100</u>
Taxable Income	400
Taxes	<u>200</u>
Net Income	<u><u>\$200</u></u>
Dividends	\$ _____
Addition to R/E	<u> </u>

T2.5 Cash Flow Example (continued)

Income Statement

Sales	\$2000
Costs	1400
Depreciation	<u>100</u>
EBIT	500
Interest	<u>100</u>
Taxable Income	400
Taxes	<u>200</u>
Net Income	<u><u>\$200</u></u>
Dividends	80
Addition to R/E	\$120

T2.5 Cash Flow Example (concluded)

A. Cash flow from assets

1. Operating cash flow = EBIT + _____ – Taxes
= \$500 + 100 – 200
= \$ _____
2. Change in NWC = _____ – _____
= \$350 – \$ _____
= \$ _____
3. Net capital spending = \$ _____ + Dep – _____
= \$500 + 100 – 400
= \$ _____
4. Cash flow from assets = OCF – chg. NWC – Cap. sp.
= \$400 – 50 – 200
= \$150

B. Cash flow to creditors and stockholders

1. Cash flow to creditors = Int. paid – _____
= \$100 – 20
= \$80
2. Cash flow to stockholders = Div. paid – _____
= \$80 – 10
= \$70

Check: \$ _____ from assets = \$ _____ to Bondholders + \$ _____ to Stockholders

T2.5 Cash Flow Example (concluded)

A. Cash flow from assets

1. Operating cash flow = EBIT + Depreciation – Taxes
= \$500 + 100 – 200
= \$400
2. Change in NWC = Ending NWC – Beginning NWC
= \$350 – 300
= \$50
3. Net capital spending = Ending NFA + Dep – Beginning NFA
= \$500 + 100 – 400
= \$200
4. Cash flow from assets = OCF – chg. NWC – Cap. sp.
= \$400 – 50 – 200
= \$150

B. Cash flow to creditors and stockholders

1. Cash flow to creditors = Int. paid – Net new Borrowing
= \$100 – 20
= \$80
2. Cash flow to stockholders = Div. paid – Net new Equity
= \$80 – 10
= \$70

Check: \$150 from assets = \$80 to bondholders + \$70 to stockholders



T2.6 Cash Flow Summary

◆ I. The cash flow identity

$$\text{Cash flow from assets} = \text{Cash flow to creditors (bondholders)} \\ + \text{Cash flow to stockholders (owners)}$$

This is based upon the balance sheet identity: $\text{Assets} = \text{Liabilities} + \text{Equity}$

The equivalent cash flow statement is:

Cash flow from assets	=	cash flow to creditors + cash flow to stockholders
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T2.6 Cash Flow Summary (cont'd)

◆ II. Cash flow from assets

$$\begin{aligned}\text{Cash flow from assets} &= \text{Operating cash flow} \\ &\quad - \text{Net capital spending} \\ &\quad - \text{Additions to net working capital (NWC)}\end{aligned}$$

where

$$\begin{aligned}\text{Operating cash flow} &= \text{Earnings before interest and taxes (EBIT)} \\ &\quad + \text{Depreciation} - \text{Taxes}\end{aligned}$$

$$\begin{aligned}\text{Net capital spending} &= \text{Ending net fixed assets} - \\ &\quad \text{Beginning net fixed assets} \\ &\quad + \text{Depreciation}\end{aligned}$$

$$\text{Change in NWC} = \text{Ending NWC} - \text{Beginning NWC}$$

◆ III. Cash flow to creditors

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

◆ IV. Cash flow to stockholders

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

T2.7 Taxes

Key issues:

- ◆ What is an *average* tax rate?
 - ◆ What is a *marginal* tax rate?
 - ◆ Why do we pay attention to marginal tax rates?
 - ◆ What are corporate tax rates?
 - ◆ What are individual tax rates?
 - ◆ How does the difference between corporate and individual tax rates affect corporate finance?
- How do tax rates relate to the goal of corporate finance?

T2.7 Individual Tax Rates

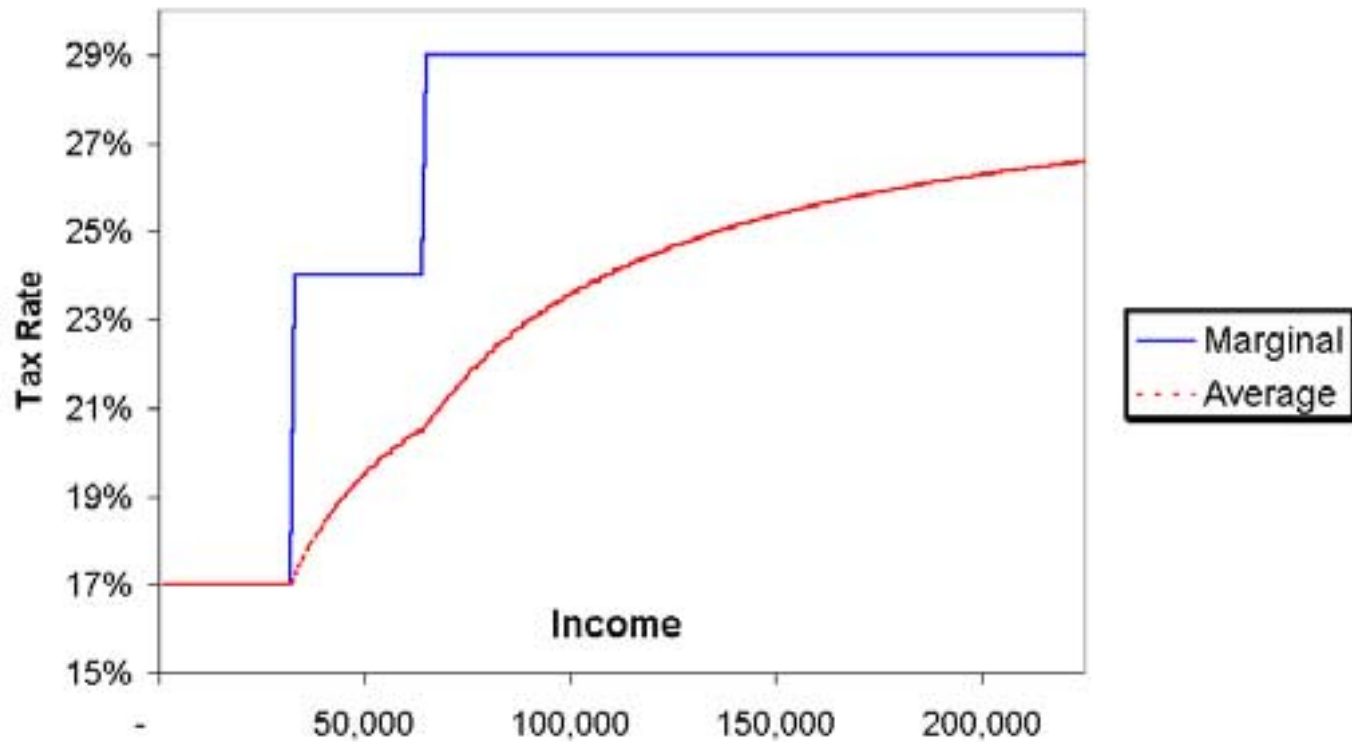
FEDERAL

Taxable Income	Tax	Rate on Excess
\$ 1	\$ --	17%
32,000	5,440	24
64,000	13,120	29

ONTARIO

Taxable Income	Rate on Excess
\$ 0 - 30,004	6.37%
30,005 - 60,000	9.62%
>60,000	11.16%

T2.7 Marginal versus Average Tax Rates



T2.7 Individual Tax Rates

SELECTED PROVINCIAL (Table 2.5)

Resident of	Percentage of Basic Federal Tax
Alberta	44%
Newfoundland	62
Prince Edward Island	57.5
Saskatchewan	48
Northwest Territories	45
Yukon Territory	50

T2.8 ILLUSTRATION OF DIVIDEND TAX CREDIT FOR ALBERTA RESIDENTS

Marginal Tax Rate	17%	24%	29%
Dividends	\$1,000	\$1,000	\$1,000
Gross up at 25%	<u>250</u>	<u>250</u>	<u>250</u>
Grossed up dividends	1250	1250	1250
Federal Tax on dividends	212.50	300.00	362.50
Less Dividend Tax Credit (13.333% x \$1,250)	<u>(166.67)</u>	<u>(166.67)</u>	<u>(166.67)</u>
Federal Tax Payable	45.83	133.33	195.83
Provincial Tax at 44% of Federal Tax	<u>20.17</u>	<u>58.67</u>	<u>86.17</u>
Total Tax	66.00	192.00	282.00
Effective Combined Tax Rates	6.6%	19.2%	28.2%

NOTE: Marginal tax rates apply to incomes of less than 32,000 (17%), more than 32,000 but less than 64000 (25%), and more than 64,000 (29%)

T2.9 Corporate Tax Rates

	FEDERAL	ONTARIO	COMBINED
Basic Corporations	27%	14.82%	42.12%
Manufacturing and Processing	21	12.82	34.12
All Small Corporations (Taxable Income below \$200 thousand)	12	7.32	19.72

T 2.10 Capital Cost Allowance - Depreciation for tax purposes

<u>Class</u>	<u>Rate</u>	<u>Assets</u>
1	4%	Buildings acquired after 1987
8	20%	Furniture, photocopiers
10	30%	Vans, trucks, tractors and computer equipment
13	Straight-line	Leasehold improvements
16	40%	Taxicabs and rental cars
22	50%	Pollution control equipment
43	30%	Manufacturing equipment

T2.11 CCA Example

Depreciation on \$22,000 Photocopier (CCA Class 8)

Year	UCC _t	CCA	UCC _{t+1}
1	11,000	2,200	\$8,800
2	19,800	3,960	15,840
3	15,840	3,168	12,672
4	12,672	2,534	10,138
5	10,138	2,028	8,110
6	8,110	1,622	6,488

T2.12 Hermetic, Inc. Balance Sheet

as of December 31
(\$ in thousands)

Assets	1998	1999
<u>Current assets</u>		
Cash	\$ 45	\$ 50
Accounts receivable	260	310
Inventory	320	385
Total	<u>\$ 625</u>	<u>\$ 745</u>
 Fixed assets		
Net plant and equipment	<u>985</u>	<u>1100</u>
 Total assets	<u><u>\$1610</u></u>	<u><u>\$1845</u></u>

T2.12 Hermetic, Inc. Balance Sheet (concluded)

Liabilities and equity	1998	1999
<u>Current liabilities</u>		
Accounts payable	\$ 210	\$ 260
Notes payable	110	175
Total	<u>\$ 320</u>	<u>\$ 435</u>
Long-term debt	205	225
<u>Stockholders' equity</u>		
Common stock and paid-in surplus	290	290
Retained earnings	795	895
Total	<u>\$1085</u>	<u>\$1185</u>
Total liabilities and equity	<u><u>\$1610</u></u>	<u><u>\$1845</u></u>

T2.13 Hermetic, Inc. Income Statement

(\$ in thousands)

Net sales	\$710.00
Cost of goods sold	480.00
Depreciation	<u>30.00</u>
Earnings before interest and taxes	\$200.00
Interest	<u>20.00</u>
Taxable income	180.00
Taxes	<u>53.45</u>
Net income	<u><u>\$126.55</u></u>
Dividends	26.55
Addition to retained earnings	\$100.00

T2.14 Hermetic, Inc. Cash Flow from Assets

Cash flow from assets:

■ Operating cash flow:

EBIT	\$ 200.00
+ Depreciation	+ 30.00
– Taxes	<u>– 53.45</u>
	<u>\$ 176.55</u>

■ Change in net working capital:

Ending net working capital	\$ 310.00
– Beginning net working capital	– 305.00
	<u>\$ 5.00</u>

■ Net capital spending:

Ending net fixed assets	\$ 1,100.00
– Beginning net fixed assets	– 985.00
+ Depreciation	<u>+ 30.00</u>
	<u>\$ 145.00</u>

Cash flow from assets: \$ 26.55

T2.14 Hermetic, Inc. Cash Flow from Assets (concluded)

Total cash flow to creditors and stockholders:

■ Cash flow to creditors:

Interest paid	\$ 20.00
– Net new borrowing	<u>– 20.00</u>
	<u>\$ 0.00</u>

■ Cash flow to stockholders:

Dividends paid	\$ 26.55
– Net new equity raised	<u>0.00</u>
	<u>\$ 26.55</u>

Cash flow to creditors and stockholders \$ 26.55

T2.15 Chapter 2 Quick Quiz

The taxable income of Harrold Schwarz, an Ontario resident, is \$63,000.

Calculate Schwarz's (a) dollar tax liability, (b) average tax rate, and (c) marginal tax rate.

(a) Dollar tax liability =

[Federal] $.17(\underline{\hspace{2cm}}) + .24(\underline{\hspace{2cm}}) + .29(\underline{\hspace{2cm}})$

[Ontario] $+ .0637(\underline{\hspace{2cm}}) + .0962(\underline{\hspace{2cm}}) + .1116(\underline{\hspace{2cm}})$

(b) Average tax rate = $\underline{\hspace{2cm}} / \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(c) Marginal tax rate = $\underline{\hspace{2cm}}$

Why should financial decision-makers be concerned about the firm's marginal rate? Its average rate?

T2.15 Chapter 2 Quick Quiz

The taxable income of Harrold Schwarz, an Ontario resident, is \$63,000. Calculate Schwarz's (a) dollar tax liability, (b) average tax rate, and (c) marginal tax rate.

(a) Dollar tax liability =

$$\text{[Federal]} \quad .17(32,000) + .24(31,000) + .29(0)$$

$$\text{[Ontario]} \quad + .0637(30,004) + .0962(29,996) + .1116(3,000) = 18,012$$

(b) Average tax rate = $18,012/63,000 = 28.6\%$

(c) Marginal tax rate = 35.16%

Why should financial decision-makers be concerned about the firm's marginal rate? Its average rate?

T2.16 Solution to Problem 2.12

- The December 31, 1999 balance sheet Pearl Jelly, Inc. showed long-term debt of \$2 million, and the December 31, 2000 balance sheet showed long-term debt of \$2.9 million. The 2000 income statement showed interest expense of \$700,000. What was cash flow to creditors during 1999?

Cash flow to creditors = Interest paid – Net new borrowing

◆ Interest paid = \$700,000

◆ Net new borrowing = \$_____ – 2 million = \$_____

Cash flow to creditors = \$700,000 – (_____)
= _____

T2.16 Solution to Problem 2.12

- The December 31, 1999 balance sheet Pearl Jelly, Inc. showed long-term debt of \$2 million, and the December 31, 2000 balance sheet showed long-term debt of \$2.9 million. The 2000 income statement showed interest expense of \$700,000. What was cash flow to creditors during 1999?

Cash flow to creditors = Interest paid – Net new borrowing

◆ Interest paid = \$700,000

◆ Net new borrowing = \$2.9 million – 2 million = \$900K

Cash flow to creditors = \$700,000 – 900,000
= –\$200,000

T2.17 Solution to Problem 2.13

- The December 31, 1999 balance sheet Pearl Jelly, Inc. showed \$500,000 in the common stock account, and \$6.6 million in the additional paid-in surplus account. The December 31, 2000 balance sheet showed \$550,000 and \$7.0 million in the same two accounts. If the company paid out \$300,000 in cash dividends during 2000, what was the **cash flow to stockholders** for the year?

Cash flow to stockholders = Dividends paid – Net new equity

◆ Dividends paid = _____

◆ Net new equity = (_____ + _____) – _____ + _____)

Cash flow to stockholders

◆ = _____ – _____

◆ = _____

T2.17 Solution to Problem 2.13

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Cash flow to stockholders = Dividends paid – Net new equity

- ◆ Dividends paid = \$300,000
- ◆ Net new equity = $(\$550,000 + 7m) - (\$500,000 + 6.6m) = \$450,000$

Cash flow to stockholders

- ◆ = $\$300,000 - 450,000$
- ◆ = $-\$150,000$

T2.18 Solution to Problem 2.14

- Given the information for Pearl Jelly, Inc. in problems 12 and 13, suppose you also know that the firm's net capital spending during 2000 was \$500,000, and that the firm reduced its net working capital investment by \$135,000. What was the firm's 2000 operating cash flow, or OCF?

Cash flow from assets (CFA) =

Cash flow to creditors + Cash flow to stockholders

Cash flow to creditors = $-\$200,000$

Cash flow to stockholders = $-\$150,000$

So, Cash flow from assets = $-\$200K + (-)150,000K = -\$350K$.

And,

$CFA = OCF - \text{chg. in NWC} - \text{capital spending}$

Solving for OCF:

- ◆ $OCF = CFA + \text{chg. in NWC} + \text{capital spending}$
- ◆ $OCF = \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$
- ◆ $OCF = \$ \underline{\hspace{2cm}}$

T2.18 Solution to Problem 2.14

- Given the information for Pearl Jelly, Inc. in problems 12 and 13, suppose you also know that the firm's net capital spending during 2000 was \$500,000, and that the firm reduced its net working capital investment by \$135,000. What was the firm's 2000 operating cash flow, or OCF?

Cash flow from assets (CFA) =

Cash flow to creditors + Cash flow to stockholders

Cash flow to creditors = $-\$200,000$

Cash flow to stockholders = $-\$150,000$

So, cash flow from assets = $-\$200K + (-)150,000K = -\$350K$.

And,

$CFA = OCF - \text{Chg. in NWC} - \text{Capital spending}$

Solving for OCF:

- ◆ $OCF = CFA + \text{Chg. in NWC} + \text{Capital spending}$
- ◆ $OCF = -\$350K + (-135,000) + 500,000$
- ◆ $OCF = \$15,000$