Chapter 2 Suggested Problems Solutions

14. To find the OCF, we first calculate net income.

Income Statement	
Sales	$185,000
Costs	98,000
Other expenses	6,700
Depreciation	16,500
EBIT	$63,800
Interest	9,000
Taxable income	$54,800
Taxes	19,180
Net income	$35,620
Dividends	$9,500
Additions to RE	$26,120

a. OCF = EBIT + Depreciation – Taxes = $61,120

b. CF(B) = Interest – Net new LTD = $9,000 – (–$7,100) = $16,100
Note that the net new long-term debt is negative because the company repaid part of its long-term debt.

c. CF(S) = Dividends – Net new equity = $9,500 – 7,550 = $1,950

d. The Financial Cash Flow identity states that CF(A) = CF(B) + CF(S), so
CF(A) = $16,100 + 1,950 = $18,050
CF(A) is defined as OCF – Net capital spending – Change in NWC. We already know OCF, and Net capital spending = Increase in NFA + Depreciation = $26,100 + 16,500 = $42,600. Then, solving for the change in NWC gives $470, i.e., increasing its NWC by $470.

17. *a.* Taxes Growth = 0.15($50,000) + 0.25($25,000) + 0.34($86,000 – 75,000) = $17,490
Taxes Income = 0.15($50,000) + 0.25($25,000) + 0.34($25,000) + 0.39($235,000)
+ 0.34($8,600,000 – 335,000) = $2,924,000

b. Each firm has a marginal tax rate of 34 percent on the next $10,000 of taxable income, despite their different average tax rates, so both firms will pay an additional $3,400 in taxes.

18.

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
a.	Net income	($145,000)

b. OCF = EBIT + Depreciation – Taxes = $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.

19. 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)

CF(A) = OCF – Change in NWC – Net capital spending = $65,000 - $0 - $0 = $65,000

CF(S) = Dividends – Net new equity = $34,000 - $0 = $34,000

From the Financial Cash Flows identity, CF(B) = CF(A) – CF(S) = $31,000

Given that CF(B) = Interest – Net new LTD, Net new LTD = Interest – CF(B) = $70,000 – 31,000 = $39,000

20. *a.*

Income Statement	
Sales	$19,900
Cost of goods 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 = $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) = $650

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

CF(A) = OCF – Change in NWC – Net capital spending = –$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. CF(B) = Interest – Net new LTD = $670 - $0 = $670

From the Financial Cash Flows identity, CF(S) = CF(A) – CF(B) = –$682

Since CF(S) is defined as Dividends – Net new equity, we solve for
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.

21. *a.*

Total assets 2011	= $936 + 4,176 = $5,112
Total liabilities 2011	= $382 + 2,160 = $2,542
Owners' equity 2011	= $5,112 – 2,542 = $2,570
Total assets 2012	= $1,015 + 4,896 = $5,911
Total liabilities 2012	= $416 + 2,477 = $2,893
Owners' equity 2012	= $5,911 – 2,893 = $3,018

b.

NWC 2011	= CA11 – CL11 = $936 – 382 = $554
NWC 2012	= CA12 – CL12 = $1,015 – 416 = $599
Change in NWC	= NWC12 – NWC11 = $599 – 554 = $45

c. Net capital spending = $4,896 – 4,176 + 1,150 = $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 = $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 = $12,380 – 5,776 – 1,150 = $5,454
EBT = $5,454 – 314 = $5,140
Taxes = $5,140 × .40 = $2,056

OCF = $5,454 + 1,150 – 2,056 = $4,548

Cash flow from assets = $4,548 – 45 – 1,870 = $2,633

d. Net new borrowing = $2,477 – 2,160 = $317
Cash flow to creditors = $314 – 317 = –$3

Net new borrowing = $317 = Debt issued – Debt retired
Debt retired = $432 – 317 = $115

22.

Balance sheet as of Dec. 31, 2011

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

Balance sheet as of Dec. 31, 2012

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

2011 Income Statement

Sales	$7,835.00
COGS	2,696.00
Other expenses	639.00
Depreciation	1,125.00
EBIT	$3,375.00
Interest	525.00
EBT	$2,850.00
Taxes	969.00
Net income	$1,881.00
Dividends	$956.00
Additions to RE	925.00

2012 Income Statement

Sales	$8,409.00
COGS	3,060.00
Other expenses	534.00
Depreciation	1,126.00
EBIT	$3,689.00
Interest	603.00
EBT	$3,086.00
Taxes	1,049.24
Net income	$2,036.76
Dividends	$1,051.00
Additions to RE	985.76

23. OCF = EBIT + Depreciation – Taxes = $3,765.76

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

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

CF(A) = OCF – Change in NWC – Net capital spending = $3,765.76 – 2,229 – 1,948 = –$411.24

CF(B) = Interest – Net new LTD = $603 – ($16,050 – 13,460) = –$1,987

Net new equity = Common $stock_{end}$ – Common $stock_{beg}$ and

Common stock + Retained earnings = Total owners' equity

Hence, Net new equity = $(OE - RE)_{end} - (OE - RE)_{beg}$, and $RE_{end} = RE_{beg}$ + Additions to RE

$\therefore$ Net new equity $= OE_{end} - OE_{beg} + RE_{beg} - (RE_{beg}$ + Additions to RE)

$= OE_{end} - OE_{beg}$ – Additions to RE

Net new equity = \$35,564 – 35,103 – 985.76 = –\$524.76

CF(S) = Dividends – Net new equity = \$1,051– (–\$524.76) = \$1,575.76

As a check, CF(A) = –\$1,987 + 1,575.76 = –\$411.24!