Fundamentals of Corporate Finance 13th edition Ross Solutions Manual

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Solutions Manual

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CHAPTER 1
INTRODUCTION TO CORPORATE FINANCE

Answers to Concepts Review and Critical Thinking Questions

1. Capital budgeting (deciding whether to expand a manufacturing plant), capital structure (deciding whether to issue new equity and use the proceeds to retire outstanding debt), and working capital management (modifying the firm's credit collection policy with its customers).

2. Disadvantages: unlimited liability, limited life, difficulty in transferring ownership, difficulty in raising capital funds. Some advantages: simpler, less regulation, the owners are also the managers, sometimes personal tax rates are better than corporate tax rates.

3. The primary disadvantage of the corporate form is the double taxation to shareholders of distributed earnings and dividends. Some advantages include: limited liability, ease of transferability, ability to raise capital, and unlimited life.

4. In response to Sarbanes-Oxley, small firms have elected to go dark because of the costs of compliance. The costs to comply with Sarbox can be several million dollars, which can be a large percentage of a small firm's profits. A major cost of going dark is less access to capital. Since the firm is no longer publicly traded, it can no longer raise money in the public market. Although the company will still have access to bank loans and the private equity market, the costs associated with raising funds in these markets are usually higher than the costs of raising funds in the public market.

5. The treasurer's office and the controller's office are the two primary organizational groups that report directly to the chief financial officer. The controller's office handles cost and financial accounting, tax management, and management information systems, while the treasurer's office is responsible for cash and credit management, capital budgeting, and financial planning. Therefore, the study of corporate finance is concentrated within the treasury group's functions.

6. To maximize the current market value (share price) of the equity of the firm (whether it's publicly traded or not).

7. In the corporate form of ownership, the shareholders are the owners of the firm. The shareholders elect the directors of the corporation, who in turn appoint the firm's management. This separation of ownership from control in the corporate form of organization is what causes agency problems to exist. Management may act in its own or someone else's best interests, rather than those of the shareholders. If such events occur, they may contradict the goal of maximizing the share price of the equity of the firm.

8. A primary market transaction.

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9. In auction markets like the NYSE, brokers and agents meet at a physical location (the exchange) to match buyers and sellers of assets. Dealer markets like NASDAQ consist of dealers operating at dispersed locales who buy and sell assets themselves, communicating with other dealers either electronically or literally over-the-counter.

10. Such organizations frequently pursue social or political missions, so many different goals are conceivable. One goal that is often cited is revenue minimization; that is, provide whatever goods and services are offered at the lowest possible cost to society. A better approach might be to observe that even a not-for-profit business has equity. Thus, one answer is that the appropriate goal is to maximize the value of the equity.

11. Presumably, the current stock value reflects the risk, timing, and magnitude of all future cash flows, both short-term *and* long-term. If this is correct, then the statement is false.

12. An argument can be made either way. At the one extreme, we could argue that in a market economy, all of these things are priced. There is thus an optimal level of, for example, ethical and/or illegal behavior, and the framework of stock valuation explicitly includes these. At the other extreme, we could argue that these are noneconomic phenomena and are best handled through the political process. A classic (and highly relevant) thought question that illustrates this debate goes something like this: "A firm has estimated that the cost of improving the safety of one of its products is $30 million. However, the firm believes that improving the safety of the product will only save $20 million in product liability claims. What should the firm do?"

13. The goal will be the same, but the best course of action toward that goal may be different because of differing social, political, and economic institutions.

14. The goal of management should be to maximize the share price for the current shareholders. If management believes that it can improve the profitability of the firm so that the share price will exceed $35, then they should fight the offer from the outside company. If management believes that this bidder or other unidentified bidders will actually pay more than $35 per share to acquire the company, then they should still fight the offer. However, if the current management cannot increase the value of the firm beyond the bid price, and no other higher bids come in, then management is not acting in the interests of the shareholders by fighting the offer. Since current managers often lose their jobs when the corporation is acquired, poorly monitored managers have an incentive to fight corporate takeovers in situations such as this.

15. We would expect agency problems to be less severe in countries with a relatively small percentage of individual ownership. Fewer individual owners should reduce the number of diverse opinions concerning corporate goals. The high percentage of institutional ownership might lead to a higher degree of agreement between owners and managers on decisions concerning risky projects. In addition, institutions may be better able to implement effective monitoring mechanisms on managers than can individual owners, based on the institutions' deeper resources and experiences with their own management. The increase in institutional ownership of stock in the United States and the growing activism of these large shareholder groups may lead to a reduction in agency problems for U.S. corporations and a more efficient market for corporate control.

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16. How much is too much? Who is worth more, Mark Parker or LeBron James? The simplest answer is that there is a market for executives just as there is for all types of labor. Executive compensation is the price that clears the market. The same is true for athletes and performers. Having said that, one aspect of executive compensation deserves comment. A primary reason executive compensation has grown so dramatically is that companies have increasingly moved to stock-based compensation. Such movement is obviously consistent with the attempt to better align stockholder and management interests. In recent years, stock prices have soared, so management has cleaned up. It is sometimes argued that much of this reward is due to rising stock prices in general, not managerial performance. Perhaps in the future, executive compensation will be designed to reward only differential performance, that is, stock price increases in excess of general market increases.

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CHAPTER 2
FINANCIAL STATEMENTS, TAXES, AND CASH FLOW

Answers to Concepts Review and Critical Thinking Questions

1. Liquidity measures how quickly and easily an asset can be converted to cash without significant loss in value. It's desirable for firms to have high liquidity so that they have a large factor of safety in meeting short-term creditor demands. However, since liquidity also has an opportunity cost associated with it—namely that higher returns can generally be found by investing the cash into productive assets—low liquidity levels are also desirable to the firm. It's up to the firm's financial management staff to find a reasonable compromise between these opposing needs.

2. The recognition and matching principles in financial accounting call for revenues, and the costs associated with producing those revenues, to be "booked" when the revenue process is essentially complete, not necessarily when the cash is collected or bills are paid. Note that this way is not necessarily correct; it's the way accountants have chosen to do it.

3. Historical costs can be objectively and precisely measured whereas market values can be difficult to estimate, and different analysts would come up with different numbers. Thus, there is a trade-off between relevance (market values) and objectivity (book values).

4. Depreciation is a noncash deduction that reflects adjustments made in asset book values in accordance with the matching principle in financial accounting. Interest expense is a cash outlay, but it's a financing cost, not an operating cost.

5. Market values can never be negative. Imagine a share of stock selling for –$20. This would mean that if you placed an order for 100 shares, you would get the stock along with a check for $2,000. How many shares do you want to buy? More generally, because of corporate and individual bankruptcy laws, net worth for a person or a corporation cannot be negative, implying that liabilities cannot exceed assets in market value.

6. For a successful company that is rapidly expanding, for example, capital outlays will be large, possibly leading to negative cash flow from assets. In general, what matters is whether the money is spent wisely, not whether cash flow from assets is positive or negative.

7. It's probably not a good sign for an established company, but it would be fairly ordinary for a start-up, so it depends.

8. For example, if a company were to become more efficient in inventory management, the amount of inventory needed would decline. The same might be true if it becomes better at collecting its receivables. In general, anything that leads to a decline in ending NWC relative to beginning would have this effect. Negative net capital spending would mean that more long-lived assets were liquidated than purchased.

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9. If a company raises more money from selling stock than it pays in dividends in a particular period, its cash flow to stockholders will be negative. If a company borrows more than it pays in interest, its cash flow to creditors will be negative.

10. The adjustments discussed were purely accounting changes; they had no cash flow or market value consequences unless the new accounting information caused stockholders to revalue the derivatives.

11. Enterprise value is the theoretical takeover price. In the event of a takeover, an acquirer would have to take on the company's debt but would pocket its cash. Enterprise value differs significantly from simple market capitalization in several ways, and it may be a more accurate representation of a firm's value. In a takeover, the value of a firm's debt would need to be paid by the buyer. Thus, enterprise value provides a much more accurate takeover valuation because it includes debt in its value calculation.

12. In general, it appears that investors prefer companies that have a steady earnings stream. If true, this encourages companies to manage earnings. Under GAAP, there are numerous choices for the way a company reports its financial statements. Although not the reason for the choices under GAAP, one outcome is the ability of a company to manage earnings, which is not an ethical decision. Even though earnings and cash flow are often related, earnings management should have little effect on cash flow (except for tax implications). If the market is "fooled" and prefers steady earnings, shareholder wealth can be increased, at least temporarily. However, given the questionable ethics of this practice, the company (and shareholders) will lose value if the practice is discovered.

Solutions to Questions and Problems

NOTE: All end of chapter problems were solved using a spreadsheet. Many problems require multiple steps. Due to space and readability constraints, when these intermediate steps are included in this solutions manual, rounding may appear to have occurred. However, the final answer for each problem is found without rounding during any step in the problem.

Basic

1. To find owners' equity, we must construct a balance sheet as follows:

	Balance Sheet		
CA	$ 5,400	CL	$ 4,100
NFA	28,100	LTD	10,600
		OE	??
TA	$33,500	TL & OE	$33,500

We know that total liabilities and owners' equity (TL & OE) must equal total assets of $33,500. We also know that TL & OE is equal to current liabilities plus long-term debt plus owners' equity, so owners' equity is:

Owners' equity = $33,500 – 10,600 – 4,100
Owners' equity = $18,800

And net working capital (NWC) is:

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NWC = CA – CL
NWC = $5,400 – 4,100
NWC = $1,300

2. The income statement for the company is:

Income Statement	
Sales	$742,000
Costs	316,000
Depreciation	39,000
EBIT	$387,000
Interest	34,000
EBT	$353,000
Taxes (21%)	74,130
Net income	$278,870

3. One equation for net income is:

Net income = Dividends + Addition to retained earnings

Rearranging, we get:

Addition to retained earnings = Net income – Dividends = $278,870 – 125,000 = $153,870

4. EPS = Net income/Shares = $278,870/75,000 = $3.72 per share

DPS = Dividends/Shares = $125,000/75,000 = $1.67 per share

5. Taxes = .10($9,875) + .12($40,125 – 9,875) + .22($85,525 – 40,125) + .24($163,300 – 85,525)
+ .32($189,000 – 163,300)
Taxes = $41,495.50

The average tax rate is the total tax paid divided by taxable income, so:

Average tax rate = $41,495.50/$189,000
Average tax rate = .2196, or 21.96%

The marginal tax rate is the tax rate on the next $1 of earnings, so the marginal tax rate is 32 percent.

6. To calculate OCF, we first need the income statement:

Income Statement	
Sales	$49,800
Costs	23,700
Depreciation	2,300
EBIT	$23,800
Interest	1,800
Taxable income	$22,000
Taxes (22%)	4,840
Net income	$17,160

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OCF = EBIT + Depreciation – Taxes
OCF = $23,800 + 2,300 – 4,840
OCF = $21,260

7. Net capital spending = $NFA_{end} – NFA_{beg}$ + Depreciation
Net capital spending = $3,100,000 – 2,300,000 + 327,000
Net capital spending = $1,127,000

8. Change in NWC = $NWC_{end} – NWC_{beg}$
Change in NWC = $(CA_{end} – CL_{end}) – (CA_{beg} – CL_{beg})$
Change in NWC = ($5,970 – 3,240) – ($5,320 – 2,510)
Change in NWC = $2,730 – 2,810
Change in NWC = –$80

9. Cash flow to creditors = Interest paid – Net new borrowing
Cash flow to creditors = Interest paid – $(LTD_{end} – LTD_{beg})$
Cash flow to creditors = $305,000 – ($2,660,000 – 2,250,000)
Cash flow to creditors = –$105,000

10. Cash flow to stockholders = Dividends paid – Net new equity
Cash flow to stockholders = Dividends paid – $[(Common_{end} + APIS_{end}) – (Common_{beg} + APIS_{beg})]$
Cash flow to stockholders = $654,000 – [($965,000 + 5,040,000) – ($780,000 + 4,780,000)]
Cash flow to stockholders = $209,000

Note, APIS is the additional paid-in surplus.

11. Cash flow from assets = Cash flow to creditors + Cash flow to stockholders
= –$105,000 + 209,000 = $104,000

Cash flow from assets = $104,000 = OCF – Change in NWC – Net capital spending
= $104,000 = OCF – (–$55,000) – 1,500,000

Operating cash flow = $104,000 – 55,000 + 1,500,000
Operating cash flow = $1,549,000

Intermediate

12. To find the book value of current assets, we use: NWC = CA – CL. Rearranging to solve for current assets, we get:

CA = NWC + CL
CA = $275,000 + 945,000
CA = $1,220,000

The market value of current assets and fixed assets is given, so:

Book value CA	= $1,220,000	Market value NWC	= $1,250,000
Book value NFA	= 3,500,000	Market value NFA	= 5,400,000
Book value assets	= $4,720,000	Total	= $6,650,000

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

Income Statement	
Sales	$336,000
Costs	194,700
Other expenses	9,800
Depreciation	20,600
EBIT	$110,900
Interest	14,200
Taxable income	$96,700
Taxes	21,275
Net income	$ 75,425
Dividends	$21,450
Additions to RE	$53,975

a. OCF = EBIT + Depreciation – Taxes
OCF = $110,900 + 20,600 – 21,275
OCF = $110,225

b. CFC = Interest – Net new LTD
CFC = $14,200 – (–5,400)
CFC = $19,600

Note that the net new long-term debt is negative because the company repaid part of its long-term debt.

c. CFS = Dividends – Net new equity
CFS = $21,450 – 7,100
CFS = $14,350

d. We know that CFA = CFC + CFS, so:

CFA = $19,600 + 14,350
CFA = $33,950

CFA is also equal to OCF – Net capital spending – Change in NWC. We already know OCF. Net capital spending is equal to:

Net capital spending = Increase in NFA + Depreciation
Net capital spending = $53,200 + 20,600
Net capital spending = $73,800

Now we can use:

CFA = OCF – Net capital spending – Change in NWC
$33,950 = $110,225 – 73,800 – Change in NWC
Change in NWC = $2,475

This means that the company increased its NWC by $2,475.

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14. The solution to this question works the income statement backwards. Starting at the bottom:

Net income = Dividends + Addition to retained earnings = $2,370 + 6,800 = $9,170

Now, looking at the income statement:

EBT – EBT × Tax rate = Net income

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

EBT = NI/(1 – Tax rate) = $9,170/(1 – .22) = $11,756

Now you can calculate:

EBIT = EBT + Interest = $11,756 + 5,300 = $17,056

The last step is to use:

EBIT = Sales – Costs – Depreciation
$17,056 = $76,800 – 36,900 – Depreciation
Depreciation = $22,844

15. The balance sheet for the company looks like this:

Balance Sheet			
Cash	$ 165,000	Accounts payable	$ 273,000
Accounts receivable	149,000	Notes payable	201,500
Inventory	372,000	Current liabilities	$ 474,500
Current assets	$ 686,000	Long-term debt	1,079,000
		Total liabilities	$1,553,500
Tangible net fixed assets	$2,093,000		
Intangible net fixed assets	858,000	Common stock	??
		Accumulated ret. earnings	1,778,000
Total assets	$3,637,000	Total liab. & owners' equity	$3,637,000

Total liabilities and owners' equity is:

TL & OE = CL + LTD + Common stock + Retained earnings

Solving this equation for common stock gives us:

Common stock = $3,637,000 – 1,778,000 – 1,553,500
Common stock = $305,500

16. 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. The market value of shareholders' equity can be stated as: Shareholders' equity = Max[(TA – TL), 0]. So, if TA are $11,600, equity is equal to $1,300, and if TA are $9,400, equity is equal to $0. We should note here that the book value of shareholders' equity can be negative.

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17.

Income Statement	
Sales	$865,000
COGS	535,000
A&S expenses	125,000
Depreciation	170,000
EBIT	$35,000
Interest	90,000
Taxable income	–$55,000
Taxes (25%)	0
Net income	–$55,000

a.

b. OCF = EBIT + Depreciation – Taxes
OCF = $35,000 + 170,000 – 0
OCF = $205,000

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.

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 = $205,000 – 0 – 0 = $205,000
Cash flow to stockholders = Dividends – Net new equity = $128,000 – 0 = $128,000

Cash flow to creditors = Cash flow from assets – Cash flow to stockholders
Cash flow to creditors = $205,000 – 128,000 = $77,000
Cash flow to creditors = Interest – Net new LTD
Net new LTD = Interest – Cash flow to creditors = $90,000 – 77,000 = $13,000

19. *a.*

Income Statement	
Sales	$38,072
Cost of goods sold	27,168
Depreciation	6,759
EBIT	$ 4,145
Interest	3,050
Taxable income	$ 1,095
Taxes (22%)	241
Net income	$ 854

b. OCF = EBIT + Depreciation – Taxes
= $4,145 + 6,759 – 241 = $10,663

c. Change in NWC $= NWC_{end} - NWC_{beg}$
$= (CA_{end} - CL_{end}) - (CA_{beg} - CL_{beg})$
= ($9,904 – 5,261) – ($8,025 – 4,511)
= $1,129

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Net capital spending = $NFA_{end} - NFA_{beg}$ + Depreciation
= $28,053 – 22,790 + 6,759 = $12,022

CFA = OCF – Change in NWC – Net capital spending
= $10,663 – 1,129 – 12,022 = –$2,488

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 $2,488 in funds from its stockholders and creditors to make these investments.

d. Cash flow to creditors = Interest – Net new LTD = $3,050 – 0 = $3,050

Cash flow to stockholders = Cash flow from assets – Cash flow to creditors
= –$2,488 – 3,050 = –$5,538

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 = $2,170 – (–5,538) = $7,708

The firm had positive earnings in an accounting sense (NI > 0) and had positive cash flow from operations. The firm invested $1,129 in new net working capital and $12,022 in new fixed assets. The firm had to raise $2,488 from its stakeholders to support this new investment. It accomplished this by raising $7,708 in the form of new equity. After paying out $2,170 of this in the form of dividends to shareholders and $3,050 in the form of interest to creditors, $2,488 was left to meet the firm's cash flow needs for investment.

20. *a.* $\text{Total assets}_{2020}$ = $1,327 + 5,470 = $6,797
$\text{Total liabilities}_{2020}$ = $530 + 2,891 = $3,421
$\text{Owners' equity}_{2020}$ = $6,797 – 3,421 = $3,376

$\text{Total assets}_{2021}$ = $1,438 + 6,587 = $8,025
$\text{Total liabilities}_{2021}$ = $595 + 3,075 = $3,670
$\text{Owners' equity}_{2021}$ = $8,025 – 3,670 = $4,355

b. $NWC_{2020} = CA_{2020} - CL_{2020}$ = $1,327 – 530 = $797
$NWC_{2021} = CA_{2021} - CL_{2021}$ = $1,438 – 595 = $843
Change in NWC = $NWC_{2021} - NWC_{2020}$ = $843 – 797 = $46

c. We can calculate net capital spending as:

Net capital spending = $\text{Net fixed assets}_{2021} - \text{Net fixed assets}_{2020}$ + Depreciation
Net capital spending = $6,587 – 5,470 + 1,499 = $2,616

So, the company had a net capital spending cash flow of $2,616. We also know that net capital spending is:

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Net capital spending = Fixed assets bought – Fixed assets sold
$2,616 = $2,740 – Fixed assets sold
Fixed assets sold = $2,740 – 2,616 = $124

To calculate the cash flow from assets, we must first calculate the operating cash flow. The income statement is:

Income Statement

Sales	$16,831
Costs	7,849
Depreciation expense	1,499
EBIT	$ 7,483
Interest expense	427
EBT	$ 7,056
Taxes (21%)	1,482
Net income	$ 5,574

So, the operating cash flow is:

OCF = EBIT + Depreciation – Taxes = $7,483 + 1,499 – 1,482 = $7,500

And the cash flow from assets is:

Cash flow from assets = OCF – Change in NWC – Net capital spending
= $7,500 – 46 – 2,616 = $4,838

d. Net new borrowing = $LTD_{2021} – LTD_{2020}$ = $3,075 – 2,891 = $184
Cash flow to creditors = Interest – Net new LTD = $427 – 184 = $243

Net new borrowing = $184 = Debt issued – Debt retired
Debt retired = $554 – 184 = $370

21. To construct the cash flow identity, we will begin with cash flow from assets. Cash flow from assets is:

Cash flow from assets = OCF – Change in NWC – Net capital spending

So, the operating cash flow is:

OCF = EBIT + Depreciation – Taxes
OCF = $81,741 + 72,489 – 14,028
OCF = $140,202

Next, we will calculate the change in net working capital, which is:

Change in NWC = $NWC_{end} – NWC_{beg}$
Change in NWC = $(CA_{end} – CL_{end}) – (CA_{beg} – CL_{beg})$
Change in NWC = ($77,250 – 35,834) – ($61,240 – 31,870)

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Change in NWC = $12,046

Now, we can calculate the capital spending. The capital spending is:

Net capital spending = $NFA_{end} - NFA_{beg}$ + Depreciation
Net capital spending = $539,679 – 457,454 + 72,489
Net capital spending = $154,714

Now, we have the cash flow from assets, which is:

Cash flow from assets = OCF – Change in NWC – Net capital spending
Cash flow from assets = $140,202 – 12,046 – 154,714
Cash flow from assets = –$26,558

The company's assets generated an outflow of $26,558. The cash flow from operations was $140,202, and the company spent $12,046 on net working capital and $154,714 on fixed assets.

The cash flow to creditors is:

Cash flow to creditors = Interest paid – New long-term debt
Cash flow to creditors = Interest paid – (Long-term $debt_{end}$ – Long-term $debt_{beg}$)
Cash flow to creditors = $25,630 – ($201,900 – 181,000)
Cash flow to creditors = $4,730

The cash flow to stockholders is a little trickier in this problem. First, we need to calculate the new equity sold. The equity balance increased during the year. The only way to increase the equity balance is through retained earnings or selling equity. To calculate the new equity sold, we can use the following equation:

New equity = Ending equity – Beginning equity – Addition to retained earnings
New equity = $379,195 – 305,824 – 27,883
New equity = $45,488

What happened was the equity account increased by $73,371. Of this increase, $27,883 came from addition to retained earnings, so the remainder must have been the sale of new equity. Now we can calculate the cash flow to stockholders as:

Cash flow to stockholders = Dividends paid – Net new equity
Cash flow to stockholders = $14,200 – 45,488
Cash flow to stockholders = –$31,288

The company paid $4,730 to creditors and raised $31,288 from stockholders.

Finally, the cash flow identity is:

Cash flow from assets = Cash flow to creditors + Cash flow to stockholders
–$26,558 = $4,730 + –$31,288

The cash flow identity balances, which is what we expect.

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Challenge

22. Net capital spending $= NFA_{end} - NFA_{beg} + \text{Depreciation}$
$= (NFA_{end} - NFA_{beg}) + (\text{Depreciation} + AD_{beg}) - AD_{beg}$
$= (NFA_{end} - NFA_{beg}) + AD_{end} - AD_{beg}$
$= (NFA_{end} + AD_{end}) - (NFA_{beg} + AD_{beg})$
$= FA_{end} - FA_{beg}$

23.

Balance sheet as of Dec. 31, 2020

Cash	$11,279	Accounts payable	$8,150
Accounts receivable	14,934	Notes payable	2,176
Inventory	26,551	Current liabilities	$10,326
Current assets	$52,764		
		Long-term debt	$37,778
Net fixed assets	$94,601	Owners' equity	$99,261
Total assets	$147,365	Total liab. & equity	$147,365

Balance sheet as of Dec. 31, 2021

Cash	$12,021	Accounts payable	$8,632
Accounts receivable	17,529	Notes payable	2,133
Inventory	28,421	Current liabilities	$10,765
Current assets	$57,971		
		Long-term debt	$45,798
Net fixed assets	$100,893	Owners' equity	$102,301
Total assets	$158,864	Total liab. & equity	$158,864

2020 Income Statement

Sales	$21,514.00
COGS	7,397.00
Other expenses	1,759.00
Depreciation	3,089.00
EBIT	$9,269.00
Interest	1,443.00
EBT	$7,826.00
Taxes (21%)	1,643.46
Net income	$6,182.54
Dividends	$2,573.00
Additions to RE	3,609.54

2021 Income Statement

Sales	$24,047.00
COGS	8,750.00
Other expenses	1,531.00
Depreciation	3,229.00
EBIT	$10,537.00
Interest	1,723.00
EBT	$8,814.00
Taxes (21%)	1,850.94
Net income	$6,963.06
Dividends	$3,008.00
Additions to RE	3,955.06

24. OCF = EBIT + Depreciation – Taxes = $10,537 + 3,229 – 1,850.94 = $11,915.06

Change in NWC $= NWC_{end} - NWC_{beg} = (CA - CL)_{end} - (CA - CL)_{beg}$
$= (\$57,971 - 10,765) - (\$52,764 - 10,326)$
$= \$4,768$

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Net capital spending = $NFA_{end} - NFA_{beg}$ + Depreciation
= $100,893 – 94,601 + 3,229 = $9,521

Cash flow from assets = OCF – Change in NWC – Net capital spending
= $11,915.06 – 4,768 – 9,521 = –$2,373.94

Cash flow to creditors = Interest – Net new LTD
Net new LTD = $LTD_{end} - LTD_{beg}$
Cash flow to creditors = $1,723 – ($45,798 – 37,778) = –$6,297

Net new equity = Common $stock_{end}$ – Common $stock_{beg}$
Common stock + Retained earnings = Total owners' equity
Net new equity = $(OE - RE)_{end} - (OE - RE)_{beg}$
= $OE_{end} - OE_{beg} + RE_{beg} - RE_{end}$
$RE_{end} = RE_{beg}$ + Additions to RE_{2021}
∴ Net new equity = $OE_{end} - OE_{beg} + RE_{beg} - (RE_{beg}$ + Additions to $RE_{2021})$
= $OE_{end} - OE_{beg}$ – Additions to RE_{2021}
Net new equity = $102,301 – 99,261 – 3,955.06 = –$915.06

CFS = Dividends – Net new equity
CFS = $3,008 – (–915.06) = $3,923.06

As a check, cash flow from assets is –$2,373.94.

CFA = Cash flow to creditors + Cash flow to stockholders
CFA = –$6,297 + 3,923.06 = –$2,373.94

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