Solutions for Fundamentals Of Corporate Finance 11th Edition by Ross

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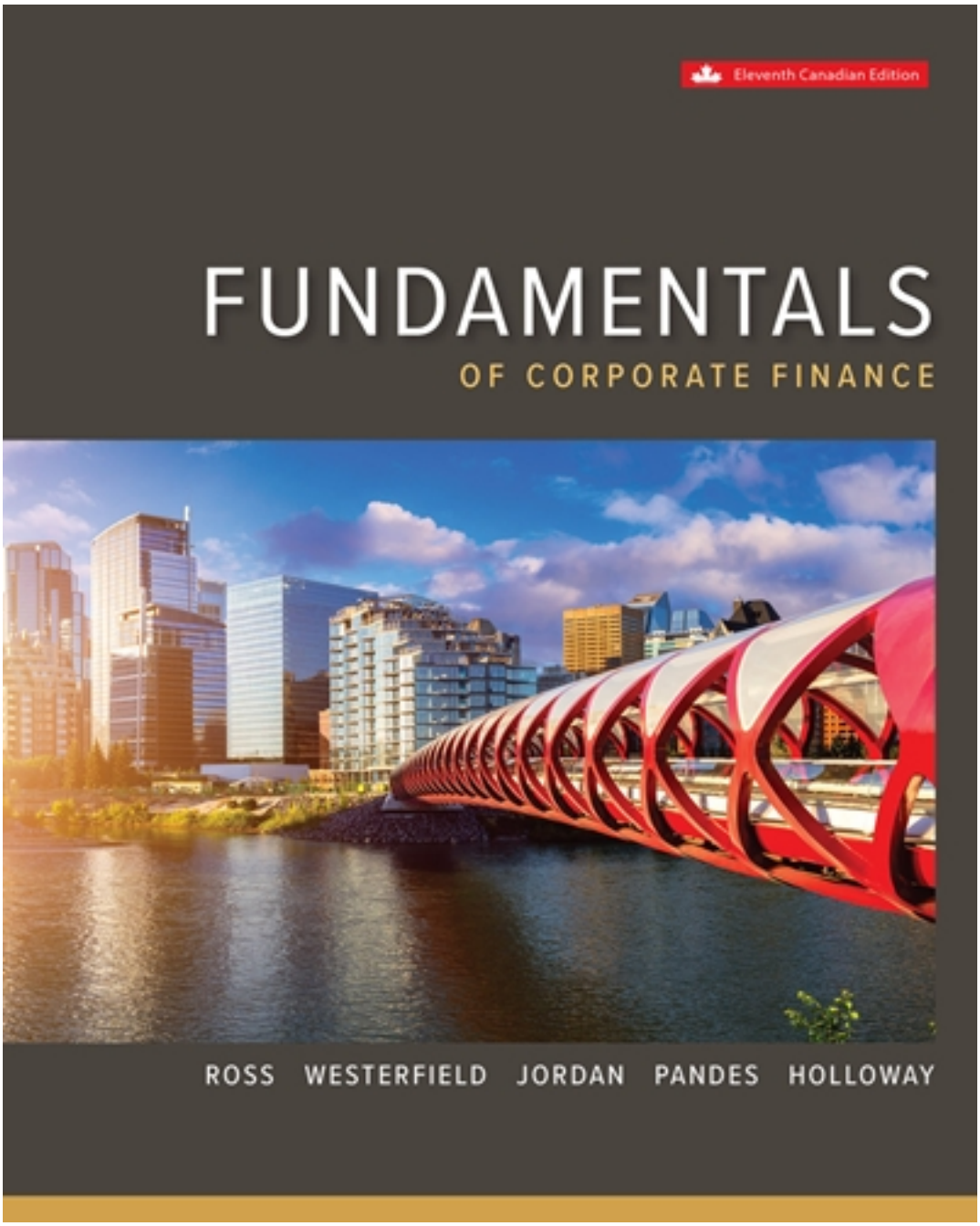

Solutions

CHAPTER 1
INTRODUCTION TO CORPORATE FINANCE

Learning Objectives

LO1 The basic types of financial management decisions and the role of the financial manager.
LO2 The financial implications of the different forms of business organization.
LO3 The goal of financial management.
LO4 The conflicts of interests that can arise between managers and owners.
LO5 The roles of financial institutions and markets.
LO6 Types of financial institutions.
LO7 Trends in financial markets.

Answers to Concepts Review and Critical Thinking Questions

1. **(LO1)** Capital budgeting (deciding on 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). (LO1)

2. **(LO2)** Disadvantages: unlimited liability, limited life, difficulty in transferring ownership, hard to raise capital funds. Some advantages: simpler, less regulation, the owners are also the managers.

3. **(LO2)** 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, unlimited life, and so forth.

4. **(LO4)** 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.

5. **(LO3)** To maximize the current market value (share price) of the equity of the firm (whether it's publicly-traded or not).

6. **(LO4)** 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.

7. **(LO5)** A primary market transaction. A secondary market transaction would entail the sale between two 3rd parties (i.e. not the corporation).

8. **(LO5)** In auction markets like the Toronto Stock Exchange (TSX), brokers and agents meet at a central location (the exchange) to match buyers and sellers of assets. Physical locations for stock markets are disappearing as trading becomes more electronic. 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. Dealer markets are less transparent than auction markets where trades are reported publicly almost immediately. The auction market run by the TSX is where the stocks of larger Canadian companies are traded; the TSX also operates a dealer market called the Venture Exchange for companies too small to qualify for the TSX auction exchange.

9. **(LO3)** Such organizations frequently pursue social or political missions, so many different goals are conceivable. One goal that is often cited is revenue minimization; i.e., provide whatever goods and services are offered at the lowest possible cost to society. Another would be to best serve the maximum possible number of stakeholders at the lowest cost. 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.

10. **(LO3)** 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.

11. **(LO3)** 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 non-economic 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 and lost customer goodwill. What should the firm do?"

12. **(LO3)** 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.

13. **(LO4)** 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.

14. **(LO4)** We would expect agency problems to be less severe in other countries, primarily due to the relatively small percentage of individual ownership. Fewer individual owners means that each individual owner has a greater incentive to monitor and control the firm—i.e. there is less free-riding. 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 Canada and in the United States and the growing activism of these large shareholder groups may lead to a reduction in agency problems for Canadian and U.S. corporations and a more efficient market for corporate control.

15. **(LO5) Major institutions:**
Chartered banks -accept deposits and issue commercial loans, corporate loans, personal loans and mortgages.
Trust companies-accept deposits and make loans, but also engage in fiduciary activities such as managing assets for estates, registered retirement savings plans, etc.
Investment dealers -non-depository institutions that assist firms in issuing new securities.
Insurance companies -engage in indirect financing by accepting funds in a form similar to a deposit and making loans.

Pension funds -invest contributions from employers and employees in securities offered by financial markets.
Mutual funds -pool individual investments to purchase a diversified portfolio.
Hedge funds -cater to sophisticated investors and seek high returns by using aggressive financial strategies prohibited by mutual funds.
Note that larger financial institutions may embody many of these different institution. For example, CIBC is a chartered bank that owns an investment dealer and mutual funds. Furthermore, it has an insurance arm "CIBC Insurance"

Major markets:
Money market -financial markets where short-term debt instruments are bought and sold.
Capital markets -financial markets where long-term debt and equity securities are bought and sold.
Derivatives markets – where options and futures are traded on financial instruments and commodities
Primary markets are where securities are sold for the first time; secondary markets are where outstanding securities trade.

16. (LO5) Spread versus Fee Income:

Banks earn spread or interest income by borrowing from depositors and lending to borrowers (at a higher yield). An example is a retail deposit and a mortgage. Banks make non-interest or fee income when they charge commissions or fees for services. An example is an overdraft fee or ATM fee, or the example in the text, the stamping fee on a banker's acceptance (which is a form of insurance and arranging fee).

17. (LO5) Trends:

Financial engineering -the creation of new securities or financial processes. This engineering could be used to package and sell risky assets to investors; for example, banks can package and sell mortgages into mortgage backed securities and sell these on to other investors.

Derivative securities -options, futures, forwards, and other securities whose value is derived from the price of another, underlying asset. For example, a futures contract to purchase oil sets a fixed purchase/selling price for a future date, but its value depends on the price of oil. These derivatives can help businesses divest risks that are not core to their business, such as foreign exchange and input price (like oil) risk.

Regulatory dialectic -the pressures that financial institutions and regulatory bodies exert on each other. For example, when restrictions are removed, growth opportunities may increase. However, the absence of regulatory restrictions may also lead to problems such as the global financial crisis starting in 2007 caused by excessive financial leverage, so it is important that there be an appropriate level of regulatory oversight.

ESG –Investors and corporations (and their many stakeholders) are increasingly focused on Environmental, Societal, and Governance issues. This includes employee and customer welfare as well as climate change and pollution.

These trends have made financial management a much more complex and technical activity.

CHAPTER 2

FINANCIAL STATEMENTS, CASH FLOW, AND TAXES

Learning Objectives

LO1 The difference between accounting value (or "book" value) and market value.
LO2 The difference between accounting income and cash flow.
LO3 How to determine a firm's cash flow from its financial statements.
LO4 The difference between average and marginal tax rates.
LO5 The basics of Capital Cost Allowance (CCA) and Undepreciated Capital Cost (UCC).

Answers to Concepts Review and Critical Thinking Questions

1. **(LO1)** 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. **(LO2)** 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 incorrect; it's the way accountants have chosen to do it.

3. **(LO1)** 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 tradeoff between relevance (market values) and objectivity (book values).

4. **(LO3)** 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. **(LO1)** Market values for corporations 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 bankruptcy laws, net worth for a corporation cannot be negative, implying that liabilities cannot exceed assets in market value.

6. **(LO3)** 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. **(LO3)** 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. **(LO3)** 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 more long-lived assets were liquidated than purchased.

9. **(LO3)** 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. **(LO1)** 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 when taking over a company. This enterprise value provides a much more accurate takeover valuation because it includes debt in its value calculation.

Solutions to Questions and Problems

Basic

1. **(LO1)** To find shareholder's equity, we must construct a Statement of Financial Position as follows:

Statement of Financial Position			
CA	$4,900	CL	$4,200
NFA	27,500	LTD	10,500
		SE	??
TA	$32,400	TL & SE	$32,400

We know that total liabilities and owner's equity (TL & SE) must equal total assets of $32,400. We also know that TL & SE is equal to current liabilities plus long-term debt plus shareholder's equity, so shareholder's equity is:

SE = $32,400 – 4,200 – 10,500 = $17,700

NWC = CA – CL = $4,900 – 4,200 = $700

2. **(LO1)** The Statement of Comprehensive Income for the company is:

Statement of Comprehensive Income	
Sales	$734,000
Costs	315,000
Depreciation	48,000
EBIT	$371,000
Interest	35,000
EBT	$336,000
Taxes (35%)	117,600
Net income	$218,400

3. **(LO1)** One equation for net income is:

Net income = Dividends + Addition to retained earnings
Rearranging, we get:
Addition to retained earnings = Net income – Dividends = $218,400 – 85,000 = $133,400

4. **(LO1)**

EPS = Net income / Shares = $218,400 / 110,000 = $1.985 per share
DPS = Dividends / Shares = $85,000 / 110,000 = $0.773 per share

5. **(LO1)**

NWC = CA – CL;
CA = $380K + 1.1M = $1.48M

Book value CA = $1.48M	Market value CA = $1.6M
Book value NFA = $3.7M	Market value NFA = $4.9M
Book value assets= $1.48M + 3.7M = $5.18M	Market value assets = $1.6M + 4.9M = $6.5M

6. **(LO4)**

Tax bill = 0.11 x $255,000 = $28,050

7. **(LO4)** The average tax rate is the total tax paid divided by net income, so:

Average tax rate = $28,050 / $255,000 = 11%

The marginal tax rate is the tax rate on the next $1 of earnings, so again the marginal tax rate = 11% because this corporation has earnings well below $500,000. If the firm had an income of $500,000, its marginal tax rate will rise to 25% for its next dollar of income.

8. **(LO3)** To calculate OCF, we first need the Statement of Comprehensive Income:

Statement of Comprehensive Income	
Sales	$39,500
Costs	18,400
Depreciation	1,900
EBIT	$19,200
Interest	1,400
Taxable income	$17,800
Taxes (35%)	$6,230
Net income	$11,570

OCF = EBIT + Depreciation – Taxes = $19,200+ 1,900 – 6,230 = $14,870

9. **(LO3)**

Net capital spending = $NFA_{end} – NFA_{beg}$ + Depreciation
Net capital spending = $3.6M – 2.8M + 0.345 M
Net capital spending = $1.145M

10. **(LO3)**

Change in NWC = $NWC_{end} – NWC_{beg}$
Change in NWC = $(CA_{end} – CL_{end}) – (CA_{beg} – CL_{beg})$
Change in NWC = ($3,460– 1,980) – ($3,120 – 1,570)
Change in NWC = $1,480 – 1,550 = -$70

11. **(LO3)**

Cash flow to creditors = Interest paid – Net new borrowing
Cash flow to creditors = Interest paid – $(LTD_{end} – LTD_{beg})$
Cash flow to creditors = $190K – ($2.55– 2.3M)
Cash flow to creditors = $190K - 250K
Cash flow to creditors = -$60K

12. (LO3)

Cash flow to shareholders = Dividends paid – Net new equity
Cash flow to shareholders = \$490K – [$Common_{end}$ – $Common_{beg}$]
Cash flow to shareholders = \$490K – [\$815K – \$740K]
Cash flow to shareholders = \$490K – [\$75K] = \$415K

Intermediate

13. (LO3)

Cash flow from assets	= Cash flow to creditors + Cash flow to shareholders
	= \$-60K + 415K = \$355K
Cash flow from assets	= \$355K = OCF – Change in NWC – Net capital spending
	= \$355K = OCF – (–55K) – 1,300K
Operating cash flow	= \$355K – 55K + 1,300K
Operating cash flow	= \$1,600K

14. (LO3) To find the OCF, we first calculate net income.

Statement of Comprehensive Income	
Sales	\$235,000
Costs	141,000
Depreciation	17,300
Other expenses	7,900
EBIT	\$68,800
Interest	12,900
Taxable income	\$55,900
Taxes	19,565
Net income	\$36,335
Dividends	\$12,300
Additions to RE	\$24,035

a. OCF = EBIT + Depreciation – Taxes = \$68,800 + 17,300 – 19,565 = \$66,535

b. CFC = Interest – Net new LTD = \$12,900 – (–4,500) = \$17,400

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 = \$12,300 – 6,100= \$6,200

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

CFA = \$17,400 + 6,200 = \$23,600

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 = \$25,000 + \$17,300 = \$42,300

Now we can use:

CFA = OCF – Net capital spending – Change in NWC
\$23,600 = \$66,535 – \$42,300 – Change in NWC
Change in NWC = \$23,600 - \$66,535 + \$42,300

Solving for the change in NWC gives $635, meaning the company increased its NWC by $635.

15. **(LO1)** The solution to this question works the Statement of Comprehensive Income backwards. Starting at the bottom:

Net income = Dividends + Addition to ret. earnings = $1,800 + 5,300 = $7,100

Now, looking at the income statement:

EBT – (EBT × Tax rate) = Net income

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

EBT = NI / (1– tax rate) = $7,100 / (1 – 0.35) = $10,923.08

Now you can calculate:

EBIT = EBT + Interest = $10,923.08 + 4,900 = $15,823.08

The last step is to use:

EBIT = Sales – Costs – Depreciation
EBIT = $52,000 – 27,300 – Depreciation = $15,823.08

Solving for depreciation, we find that depreciation = $8,876.92

16. **(LO1)** The balance sheet for the company looks like this:

	Statement of Financial Position		
Cash	$127,000	Accounts payable	$210,000
Accounts receivable	105,000	Notes payable	160,000
Inventory	293,000	Current liabilities	$370,000
Current assets	$525,000	Long-term debt	845,000
		Total liabilities	$1,215,000
Tangible net fixed assets	1,620,000		
Intangible net fixed assets	630,000	Common stock	??
		Accumulated ret. earnings	1,278,000
Total assets	$2,775,000	Total liab. & owners' equity	$2,775,000

Total liabilities and owners' equity is:

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

Solving for this equation for equity gives us:

Common stock = $2,775,000 – 1,215,000 – 1,278,000 = $282,000

17. **(LO1)** The **market value** of shareholders' equity cannot be zero. 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 is $7,100, equity is equal to $1,300, and if TA is $5,200, equity is equal to $0. We should note here that the **book value** of shareholders' equity can be negative.

18. **(LO4)** Growth qualifies as a small business. Income uses a blended rate. In both cases add the federal and provincial rates,

a. Taxes Growth = 0.11($88,000) = $9,680
Taxes Income = 0.11($500,000) + 0.25($8,300,000) = $2,130,000

b. Unlike personal taxes, marginal and average rates don't differ in this case. However the two firms have different marginal tax rates. Corporation Growth pays an additional $1,100 of taxes and in general pays 11% of its next dollar of taxable income in taxes. Corporation Income pays $2,700 of taxes and in general pays 25% of its next dollar of taxable income in taxes.

19. **(LO2)**

	Statement of Comprehensive Income
	Sales	$850,000
	COGS	610,000
	A&S expenses	110,000
	Depreciation	140,000
	EBIT	–$10,000
	Interest	85,000
	Taxable income	–$95,000
	Taxes (35%)	0
a.	Net income(Loss)	–$95,000

b. OCF = EBIT + Depreciation – Taxes = –$10,000 + 140,000 – 0 = $130,000

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.

20. **(LO3**

A firm can still pay out dividends if net income is negative; it just has to be sure there are sufficient cash reserves or 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 = $130K – 0 – 0 = $130K
Cash flow to shareholders = Dividends – Net new equity = $63K – 0 = $63K
Cash flow to creditors = Cash flow from assets – Cash flow to shareholders
Cash flow to creditors = $130K – 63K = $67K
Cash flow to creditors = Interest – Net new LTD
Net new LTD = Interest – Cash flow to creditors = $85K – 67K = $18K

21. (LO2)

a.

Statement of Comprehensive Income	
Sales	$22,800
Cost of goods sold	16,050
Depreciation	4,050
EBIT	$ 2,700
Interest	1,830
Taxable income	$ 870
Taxes (34%)	295.80
Net income	$ 574.20

b. OCF = EBIT + Depreciation – Taxes
= $2,700 + 4,050 – 295.80 = $6,454.20

c. Change in NWC = $NWC_{end} - NWC_{beg}$
= $(CA_{end} - CL_{end}) - (CA_{beg} - CL_{beg})$
= ($5,930 – 3,150) – ($4,800 – 2,700)
= $2,780 – 2,100 = $680

Net capital spending = $NFA_{end} - NFA_{beg}$ + Depreciation
= $16,800 – 13,650 + 4,050 = $7,200

CFA = OCF – Change in NWC – Net capital spending
= $6,454.20 – 680 – 7,200 = –$1,425.80

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 $1,425.80 in funds from its shareholders and creditors to make these investments.

d. Cash flow to creditors = Interest – Net new LTD = $1,830 – 0 = $1,830
Cash flow to shareholders = Cash flow from assets – Cash flow to creditors
= -$1,425.80 – 1,830 = –$ 3,255.80

We can also calculate the cash flow to shareholders as:
Cash flow to shareholders = Dividends – Net new equity

Solving for net new equity, we get:
Net new equity = $1,300 – (–3,255.80) = $4,555.8

The firm had positive earnings in an accounting sense (NI > 0) and had positive cash flow from operations. The firm invested $680 in new net working capital and $7,200 in new fixed assets. The firm had to raise $1,425.80 from its stakeholders to support this new investment. It accomplished this by raising $4,555.8 in the form of new equity. After paying out $1,300 of this in the form of dividends to shareholders and $1,830 in the form of interest to creditors, $1,425.80 was left to meet the firm's cash flow needs for investment.

22. (LO3)

a.

Total assets 2019	= $914 + 3,767 = $4,681
Total liabilities 2019	= $365 + 1,991 = $2,356
Owners' equity 2019	= $4,681 – 2,356 = $2,325
Total assets 2020	= $990 + 4,536 = $5,526
Total liabilities 2020	= $410 + 2,117 = $2,527
Owners' equity2020	= $5,526 – 2,527 = $2,999

b.

NWC 2019	= CA19 – CL19 = $914 – 365 = $549
NWC 2020	= CA20 – CL20 = $990– 410 = $580
Change in NWC	= NWC20 – NWC19 = $580 – 549 = $31

c. We can calculate net capital spending as:

Net capital spending	= Net fixed assets 2020 – Net fixed assets 2019 + Depreciation
Net capital spending	= $4,536 – 3,767 + 1,033= $1,802

So, the company had a net capital spending cash flow of $1,802. We also know that net capital spending is:

Net capital spending	= Fixed assets bought – Fixed assets sold
$1,802	= $1,890 – Fixed assets sold
Fixed assets sold	= $1,890 – 1,802 = $88

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	= Sales – Costs – Depreciation = $11,592 – 5,405 – 1,033= $5,154
EBT	= EBIT – Interest = $5,154 – 294 = $4,860
Taxes	= EBT × 0.35 = $4,860 × 0.35 = $1,701
OCF	= EBIT + Depreciation – Taxes = $4,860 + 1,033 – 1,701 = $4,192
Cash flow from assets	= OCF – Change in NWC – Net capital spending.
	= $4,192 – 31 – 1,802 = $2,359

d.

Net new borrowing	= LTD20 – LTD19 = $2,117 – 1,991 = $126
Cash flow to creditors	= Interest – Net new LTD = $294 – 126 = $168
Net new borrowing	= $126 = Debt issued – Debt retired
Debt retired	= $378 – 126 = $252

Challenge

23. (LO3)

Net capital spending $= NFA_{end} - NFA_{beg} + \text{Depreciation}$

$= (NFA_{end} - NFA_{beg}) + (\text{Depreciation} + AD_{beg}) - AD_{beg}$

$= (NFA_{end} - NFA_{beg}) + AD_{end} - AD_{beg}$

$= (NFA_{end} + AD_{end}) - (NFA_{beg} + AD_{beg}) = FA_{end} - FA_{beg}$

24. (LO1)

Statement of Financial Position as of Dec. 31, 2019			
Cash	$6,067	Accounts payable	$4,384
Accounts receivable	8,034	Notes payable	1,171
Inventory	14,283	Current liabilities	$5,555
Current assets	$28,384		
		Long-term debt	$20,320
Net fixed assets	$50,888	Owners' equity	53,397
Total assets	$79,272	Total liab. & equity	$79,272

Statement of Financial Position as of Dec. 31, 2020			
Cash	$6,466	Accounts payable	$4,644
Accounts receivable	9,427	Notes payable	1,147
Inventory	15,288	Current liabilities	$5,791
Current assets	$31,181		
		Long-term debt	$24,696
Net fixed assets	$54,273	Owners' equity	54,967
Total assets	$85,454	Total liab. & equity	$85,454

2019 Statement of Comprehensive Income	
Sales	$11,573.00
COGS	3,979.00
Other expenses	946.00
Depreciation	1,661.00
EBIT	$4,987.00
Interest	776.00
EBT	$4,211.00
Taxes (34%)	1,431.74
Net income	$2,779.26
Dividends	$1,411.00
Additions to RE	1,368.26

2020 Statement of Comprehensive Income	
Sales	$12,936.00
COGS	4,707.00
Other expenses	824.00
Depreciation	1,736.00
EBIT	$5,669.00
Interest	926.00
EBT	$4,743.00
Taxes (34%)	1,612.62
Net income	$3,130.38
Dividends	$1,618.00
Additions to RE	1,512.38

25. (LO3)

OCF = EBIT + Depreciation – Taxes = $5,669 + 1,736 – 1612.62 = $5,792.38

Change in NWC = $NWC_{end} - NWC_{beg} = (CA - CL)_{end} - (CA - CL)_{beg}$
= ($31,181 – 5,791) – ($28,384 – 5,555)
= $2,561

Net capital spending = $NFA_{end} - NFA_{beg}$ + Depreciation
= $54,273 – 50,888 + 1,736 = $5,121

Cash flow from assets = OCF – Change in NWC – Net capital spending
= $5,792.38 – 2,561 – 5,121 = -$1,889.62

Cash flow to creditors = Interest – Net new LTD
Net new LTD = $LTD_{end} - LTD_{beg}$
Cash flow to creditors = $926 – ($24,696 – 20,320) = –$3,450

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
∴ Net new equity $= OE_{end} - OE_{beg} + RE_{beg} - (RE_{beg}$ + Additions to RE
$= OE_{end} - OE_{beg}$ – Additions to RE
Net new equity = $54,967– 53,397 – 1,512.38 = $57.62

CFS = Dividends – Net new equity
CFS = $1,618 – 57.62 = $1,560.38

As a check, cash flow from assets is -$1,889.62

CFA = Cash flow from creditors + Cash flow to shareholders
CFA = –$3,450 + $1,560.38= -$1,889.62

26. (LO4)

DIVIDENDS		INTEREST		CAPITAL GAINS	
Dividend	$40,000	Interest	$20,000	Capital Gain	$20,000
Combined Marginal Rate (top bracket)Table 2.6	31.71%	Federal Tax (29%)	5,800	Fed. Tax (1/2 x 29%)	2,900
		Prov. Tax (10%)	2,000		1,000
		Tax Payable	$7,800	Prov. Tax (1/2 x10%)	$3,900
Tax Payable	$12,684.			Tax Payable	

Cash Flow from Dividends = $40,000 - $12,684 = $27,316
Cash Flow from Interest = $20,000 - $7,800 = $12,200
Cash Flow from Capital Gains = $20, 000 - $3,900 = $16,100

27. (LO4)

a. After Tax Rate of Return on Dividends = $27,316/$75,000 = 36.42%
b. After Tax Rate of Return on Interest = $12,200/$75,000 = 16.27%
c. After Tax Rate of Return on Capital Gains = $16,100/$75,000 = 21.47%

28. (LO5)

Year	UCC	CCA	End UCC
1	500,000	225,000	275,000
2	275,000	82,500	192,500
3	192,500	57,750	134,750
4	134,750	40,425	94,325
5	94,325	28,298	66,028

29. (LO5)

Year	UCC	CCA	End UCC
1	1,000,000	300,000	700,000
2	700,000	140,000	560,000
3	560,000	112,000	448,000
4	448,000	89,600	358,400
5	358,400	71,680	286,720

30. **(LO5)**

Year	UCC	CCA	End UCC
1	100,000	45,000	55,000
2	55,000	16,500	38,500
3	38,500	11,550	26,950
4	26,950	8,085	18,865
5	18,865	5,660	3,206*

*13,206 – (0.1) ($100,000) = $3,206

If the asset class is continued, there will be no tax consequences. The after-tax proceeds from the sale will be $100,000 x 0.10 = $10,000.

31. **(LO5)**

CCA on equipment

Year	UCC	CCA	End UCC
2019	4,200,000	1,260,000	2,940,000
2020	2,940,000	588,000	2,352,000

CCA on building

Year	UCC	CCA	End UCC
2019	4,000,000	300,000	3,700,000
2020	3,700,000	185,000	3,515,000

CCA for 2019 = $1,260,000 + $300,000 = $1,560,000
CCA for 2020 = $588,000 + $185,000 = $773,000

32. **(LO5)**

Year	UCC	CCA	End UCC
2018	340,000	255,000	85,000
2019	85,000	42,500	42,500
2020	42,500	21,250	21,250
2021	1,376,250*	1,063,125**	313,125
2022	313,125	156,563	156,563

*UCC_{2021} = 21,250 - 145,000 + 1,500,000 = 1,376,250
**CCA_{2021} = (50%)(21,250 – 145,000) + 1.5(50%)(1,500,000) = 1,063,125

33. **(LO4) Using Table 2.6 in text**

a. Combined Federal & Provincial tax = 0.48($57,000)(0.05) = $1,368
After tax income = $2,850 – $1,368 = $1,482

b. Dividend Income = $25 x 250 = $6,250 x 31.71% = Tax on Dividend Income = $1,981.88
After tax income = $25(250) – $1,981.88 = $4,268.12

c. Combined Federal & Provincial tax on capital gain = $15(500)(0.24) = $1,800
After tax income = $7,500 - $1,800 = $5,700

OR Federal $15(500)(0.5)(0.33) = $1,237.5 + Provincial $15(500)(0.5)(0.15) = $5625 = $1,800 taxes
After tax income = $7,500 – $1,800 = $5,700

34. **(LO4)** Carry the ($600) loss in 2017 back 3 years and the remaining loss is carried forward 7 years: (in 1,000's) total carry backs = $116 + $140 + $168 = $424 leaving $176 ($600 – $424) to carry forward which effectively reduces taxable income to zero for all years through 2020. At that time, remaining carry-forward is $56.

35. **(LO5)**
a.

Year	UCC	CCA	End UCC
1	99,200	44,640	54,560
2	54,560	16,368	38,192
3	38,192	11,458	26,734
4	26,734	8,020	18,714
5	18,714	5,614	13,100

b. Since the asset has no value and the asset pool remains open, there are no tax consequences.

Mini Case Solutions

CHAPTER 2
CASH FLOWS AND FINANCIAL STATEMENTS AT NEPEAN BOARDS

Below are the financial statements that you are asked to prepare.

1. The income statement for each year will look like this:

Statement of Comprehensive Income

	2014	*2015*
Sales	321,437.00	391,810.00
Cost of goods sold	163,849.00	206,886.00
Selling & administrative	32,223.00	42,058.00
Depreciation	46,255.00	52,282.00
EBIT	79,110.00	90,584.00
Interest	10,056.00	11,526.00
EBT	69,054.00	79,058.00
Taxes (20%)	13,810.80	15,811.60
Net income	55,243.20	63,246.40
Dividends	27,621.60	31,623.20
Addition to retained earnings	27,621.60	31,623.20

2. The balance sheet for each year will be:

Balance Sheet as of December 31, 2014

Cash	$23,643	Accounts payable	$41,786
Accounts receivable	16,753	Notes payable	19,046
Inventory	32,255	Current liabilities	$60,832
Current assets	$72,651		
		Long-term debt	$103,006
Net fixed assets	$204,068	Owners' equity	112,881
Total assets	$276,719	Total liab. & equity	$276,719

In the first year, equity is not given. Therefore, we must calculate equity as a plug variable. Since total liabilities & equity is equal to total assets, equity can be calculated as:

Equity = $276,719 – 60,832 – 103,006
Equity = $112,881

Balance Sheet as of December 31, 2015

Balance sheet as of Dec. 31, 2015

Cash	$35,721	Accounts payable	$47,325
Accounts receivable	21,732	Notes payable	20,796
Inventory	43,381	Current liabilities	$68,121
Current assets	$100,834		
		Long-term debt	$116,334
Net fixed assets	$248,625	Owners' equity	165,004
Total assets	$349,459	Total liab. & equity	$349,459

The owner's equity for 2015 is the beginning of year owner's equity, plus the addition to retained earnings, plus the new equity, so:

Equity = $112,881 + 31,623.20 + 20,500
Equity = $165,004.20

3. Using the OCF equation:

OCF = EBIT + Depreciation – Taxes

The OCF for each year is:

OCF2014 = $79,110 + 46,255 – 13,810.80
OCF2014 = $111,554.20

OCF2015 = $90,584 + 52,282 -15,811.60
OCF2015 = $127,052.40

4. To calculate the cash flow from assets, we need to find the capital spending and change in net working capital. The capital spending and net working capital change for 2015 year were:

Net Capital Spending

Ending net fixed assets	$248,625.00
– Beginning net fixed assets	$204,068.00
+ Depreciation	$52,282.00
Net capital spending	$96,839.00

Change in Net Working Capital

Ending NWC	$32,713.00
– Beginning NWC	$11,819.00
Change in NWC	$20,894.00

These values are then used to calculate the *2015 Cash Flow From Assets.*

Cash flow from assets

Operating cash flow	$127,052.40
– Net capital spending	$96,839.00
– Change in NWC	$20,894.00
Cash flow from assets	$9,319.40

5. The cash flow to creditors was:

Cash flow to creditors

Interest paid	$11,526.00
– Net new borrowing	$13,328.00
Cash flow to creditors	-$1,802.00

6. The cash flow to stockholders was:

Cash flow to stockholders	
Dividends paid	$31,623.20
– Net new equity raised	$20,500.00
Cash flow to stockholders	$11,123.20

Answers to questions

1. The firm had positive earnings in an accounting sense (NI > 0) and had positive cash flow from operations. The firm invested $20,894 in new net working capital and $96,839 in new fixed assets. The firm disbursed $9,321.20 to its bondholders and shareholders. It raised $1,802 from bondholders, and paid $11,123.20 to stockholders.

2. The expansion plans may be a little risky. The company does have a positive cash flow, but a large portion of the operating cash flow is already going to capital spending. The company has had to raise capital from creditors and stockholders for its current operations. So, the expansion plans may be too aggressive at this time. On the other hand, companies do need capital to grow. Before investing or loaning the company money, you would want to know where the current capital spending is going, and why the company is spending so much in this area already.