Cyber Problem – Answers to Questions

"A manager's primary goal is to maximize the value of his or her firm's stock. Value is based on the stream of cash flows the firm will generate in the future." ***(Chapter 2, p. 31)***

Using your web browser search out the web site of the Loblaw Companies Limited (www.loblaw.com) and answer the following questions.

1. Go to the investor zone section of Loblaw's web site and click on annual reports. Open the 2009 annual report. Find the Management Discussions and Analysis (MD & A) section of the annual report. Describe management's key performance indicators (KPI). What do these indicators tells us about management's approach to operating the company?

There are several KPI including Sales, EBITDA Margin, Net Debt-to-Equity, interest coverage and Return on Equity (ROE). In general, they indicate management's ability to efficiently use the firm's assets. Higher sales obviously mean more products being moved through stores and potentially more customers. EBITDA – earnings before depreciation, interest and depreciation and amortization measures the amount of earnings that can be used to fund growth and pay down debts. Net Debt-to-Equity tells shareholders how much debt the company has compared to shareholder's equity. The higher the ratio of Net Debt-to-Equity, the higher the risk to shareholders. Interest coverage is the amount of net income available to cover interest payments on debts. The higher the interest coverage ratio, the better or lower risk. Return on Equity (ROE) measure the annualized return shareholder's investments in Loblaws.

2. Under section 7 of the MD&A you will find an overview of the company's financial results for 2008 and 2009. Describe the general tread in both sales and earnings per share (EPS). Does management give an explanation for the trends you see in the sales and EPS data?

Year-over-year (2008-2009) sales declined slightly from $30,802 in 2008 to $30,735 in 2009. The decline in sales was due to the sale of a food service business in 2008/2009.
However, EPS increase in quarters 1 to 3 but declined in the 4th quarter to .59 from .70 in Q4 2008. The decline in Q4 2009 was more than likely due to Q4 2007 being a 13 week period compared to a 12 week period in Q4 2009. EPS for the fiscal year (FY) 2009 was up by .37 over the prior year indicating management efficiently used the firm's resources to increase earnings available for dividends.

3. Find section 6.1 of the firm's MD&A. Cash Flows from Investing Activities (CFI) increased in 2009 compared to 2008. What explanation does management offer for this increase? Will this have an effect on depreciation expenses in the future?

CFI increased in 2009 to $91,248) from ($578) in 2008 due to the increase in fixed asset purchases in 2008. Specifically, the purchase of T & T, a seller of Asian foods and a competitor, purchased in

2008/09. This will affect depreciation expenses in the future because the T & T purchase is a fixed asset purchase. As a result EBITDA, other things equal, will increase in future fiscal years.

Chapter 1
Mini Case

Situation

Assume that you have recently graduated and have just reported to work as an investment advisor at the brokerage firm of Balik and Kiefer Inc. One of the firm's clients is Sergie Turganev, a professional hockey player who has just come to Canada from Russia.
Turganev is a highly ranked hockey player who would like to start a company to produce and market
He also expects to invest substantial amounts of money through Balik and Kiefer.
Turganev is very bright, and, therefore he would like to understand in general terms what will happe
Your boss has developed the following set of questions that you must ask and answer to explain the

a. Why is corporate finance important to all managers?

Corporate finance provides the skills managers need to:
1. **identify and select the corporate strategies and individual projects that add value to their firm anc**
2. **forecast the funding requirements of their company, and devise strategies for acquiring those fun**

b. Describe the organizational forms a company might have as it evolves from a start-up to a major c

The three main forms of business organization are (1) sole proprietorships, (2) partnerships, and (3) c
In addition, several hybrid forms are gaining popularity. These hybrid forms are the limited partnersh

Sole Proprietorships Advantages

The proprietorship has three important advantages:
(1) it is easily and inexpensively formed,
(2) it is subject to few government regulations, and
(3) the business pays no corporate income taxes.

Sole Proprietorships Disadvantages

The proprietorship also has three important limitations:
(1) it is difficult for a proprietorship to obtain large sums of capital;
(2) the proprietor has unlimited personal liability for the business's debts,
(3) the life of a business organized as a proprietorship is limited to the life of the individual who creat

Partnerships Advantages

The major advantage of a partnership is its low cost and ease of formation. The disadvantages are sir
(1) unlimited liability,
(2) limited life of the organization,
3) difficulty of transferring ownership,
(4) difficulty of raising large amounts of capital.
The tax treatment of a partnership is similar to that for proprietorships, which is often an advantage.

Corporate Form Advantages

The corporate form of business has three major advantages:
1) unlimited life,
(2) easy transferability of ownership interest,
(3) limited liability.

While the corporate form offers significant advantages over proprietorships and partnerships, it does
1) corporate earnings may be subject to double taxation
(2) setting up a corporation and filing many required reports is more complex and time-consuming th

In a limited partnership, the limited partners are liable only for the amount of their investment in the
The limited liability partnership form of organization combines the limited liability advantage of a co
Professional corporations provide most of the benefits of incorporation but do not relieve the partici

c. How do corporations "go public" and continue to grow? What are agency problems? What is corpo

A company goes public when it sells stock to the public in an initial public offering as the firm grows,
An agency problem occurs when the managers of the firm act in their own self interests and not in th
Corporate governance is the set of rules that control a company's behaviour towards its directors, m

d. What should be the primary objective of managers?

The corporation's primary goal is shareholder wealth maximization, which translates to maximizing t

1. Do firms have any responsibilities to society at large?

Firms have an ethical responsibility to provide a safe working environment, to avoid polluting the air
However, the most significant cost-increasing actions will have to be put on a mandatory rather than

2. Is stock price maximization good or bad for society?

The same actions that maximize stock prices also benefit society. Stock price maximization requires e
Stock price maximization requires the development of products and services that consumers want ar
Also, stock price maximization necessitates efficient and courteous service, adequate stocks of merch

3. Should firms behave ethically?

Yes. Results of a recent study indicate that the executives of most major firms in the United States ar
Furthermore, most executives believe that there is a positive correlation between ethics and long-ru
Companies must deal with these conflicts on a regular basis, and a failure to handle the situation pro
There is no room for unethical behavior in the business world.

e. What three aspects of cash flows affect the value of any investment?

(1) amount of expected cash flows;

(2) timing of the cash flow stream;
(3) riskiness of the cash flows.

f. What are free cash flows?

Free cash flows (FCF) are the cash flows available for distribution to all investors (shareholders and cı

FCF	=	Sales	-	Oper. Costs	-

g. What is the weighted average cost of capital?

The weighted average cost of capital (WACC) is the average rate of return required by all of the comp
It is affected by the firm's capital structure, interest rates, the firm's risk, and the market's overall att

h. How do free cash flows and the weighted average cost of capital interact todetermine a firm's valu

A firm's value is the sum of all future expected free cash flows, converted into today's dollars.

$$\text{Value} = \frac{1}{(1 + WACC)} + \frac{1}{(1 + WACC)^2} + \frac{1}{(1 + WACC)^\infty}$$

i. Who are the providers (savers) and users (borrowers) of capital? How is capital transferred between savers and borrowers?

Households are net savers. Non-financial corporations are net borrowers.
Governments are net borrowers, although the government is a net saver when it runs a surplus.
Capital is transferred through:

(1) direct transfer (e.g., corporation issues commercial paper to insurance company);

(2) an investment banking house (e.g., IPO, seasoned equity offering, or debt placement);

(3) a financial intermediary (e.g., individual deposits money in bank, bank makes commercial loan to a company).

j. (1) What do we call the price that a borrower must pay for debt capital?

The interest rate is the price paid for borrowed capital, while the return on equity capital comes in the form of dividends plus capital gains.

(2) What are the four most fundamental factors that affect the cost of money, or the general level of

The return that investors require on capital depends on (1) production opportunities, (2) time prefer

Production opportunities refer to the returns that are available from investment in productive assets: the more productive a producer firm believes its assets will be, the more it will be willing to pay for the capital necessary to acquire those assets.

Time preference for consumption refers to consumers' preferences for current consumption versus savings for future consumption: consumers with low preferences for current consumption will be willing to lend at a lower rate than consumers with a high preference for current consumption.

Inflation refers to the tendency of prices to rise, and the higher the expected rate of inflation, the larger the required rate of return.

Risk, in a money and capital market context, refers to the chance that the future cash flows will not be as high as expected--the higher the perceived default risk, the higher the required rate of return.

Risk is also linked to the maturity and liquidity of a security. The longer the maturity and the less liquid (marketable) the security, the higher the required rate of return, other things constant.

k. What are some economic conditions that affect the cost of money?

The cost of money will be influenced by such things as federal government policy, fiscal deficits, busi
The cost of money for an international investment is also affected by country risk, which refers to the
This risk depends on the country's economic, political, and social environment.
Country risk also includes the risk that property will be expropriated without adequate compensatio
sourcing or hiring practices, and damage or destruction of facilities due to internal strife.
The cost of money for an international investment is also affected by exchange rate risk. When inves
which means that the value of the investment will depend on what happens to exchange rates. Chan
International trade deficits/surpluses affect exchange rates. Also, an increase in country risk will also

l. What are financial securities? Describe some financial instruments.

Financial assets are pieces of paper with contractual obligations. Short-term securities (i.e., they mat
banker's acceptances, commercial paper, and Eurodollar deposits.
Commercial loans (which have maturities up to seven years) have rates that are usually tied to the pr
or LIBOR (the London Interbank Offered Rate, which is the rate that banks in the U.K. charge one ano
Mortgages have maturities up to thirty years. Corporate bonds have maturities up to forty years.
Corporate bonds are subject to default risk. Some preferred stocks have no maturity date; some do h

m. List some financial institutions.

Commercial banks, trust companies, and credit unions, life insurance companies, mutual funds, and

n. What are some different types of markets?

A market is a method of exchanging one asset (usually cash) for another asset. Some types of market

apparel with his signature.

n to his money.
Canadian financial system to Turganev.

d
ds.

orporation. List the advantages and disadvantages of each form.

corporations.
iip, the limited liability partnership, and the professional corporation.

ted it

nilar to those associated with proprietorships:

s have two primary disadvantages:

ıan for a proprietorship or a partnership.

e partnership; however, the limited partners typically have no control.
rporation with the tax advantages of a partnership.
pants of professional liability.

orate governance?

it might issue additional stock or debt.
ıe interests of the shareholders.
anagers, employees, shareholders, creditors, customers, competitors, and community.

he price of the firm's common stock.

or water, and to produce safe products.
a voluntary basis to ensure that the burden falls uniformly on all businesses.

efficient, low-cost operations that produce high-quality goods and services at the lowest possible cost.
ıd need, so the profit motive leads to new technology, to new products, and to new jobs.
ıandise, and well-located business establishments--factors that are all necessary to make sales, which are neces

ıd Canada believe that firms do try to maintain high ethical standards in all of their business dealings.
n profitability. Conflicts often arise between profits and ethics.
perly can lead to huge product liability suits and even to bankruptcy.

reditors) after paying expenses (including taxes) and making the necessary investments to support growth.

Oper. Taxes - Required Investments in Operating Capital

any's investors (shareholders and creditors).
itude toward risk.

e?

interest rates, in the economy?

ences for consumption, (3) risk, (4) inflation.

ness activity, and foreign trade deficits.
e risk that arises from investing or doing business in a particular country.

n, as well as new host country stipulations about local production,

ting overseas the security usually will be denominated in a currency other than the dollar,
ges in relative inflation or interest rates will lead to changes in exchange rates.
cause the country's currency to fall.

ure in less than a year) are instruments with low default risk such as treasury bills,

rime rate (i.e., the rate that banks charge their best customers)
ther. Government of Canada bonds have maturities from two to thirty years; they are free of default risk.

ave a specific maturity date. Common stock has no maturity date, and is riskier than preferred stock.

pension funds are financial intermediaries.

:s are: physical assets vs. financial assets; spot versus future markets; money versus capital markets; primary ve

ssary for profits.

rsus secondary markets.

Chapter 2
Financial Statements, Cash Flow, and Taxes

ANSWERS TO END-OF-CHAPTER QUESTIONS

2-1 a. The annual report is a report issued annually by a corporation to its shareholders. It contains basic financial statements, as well as management's opinion of the past year's operations and the firm's future prospects. A firm's balance sheet is a statement of the firm's financial position at a specific point in time. It specifically lists the firm's assets on the left-hand side of the balance sheet, while the right-hand side shows its liabilities and equity, or the claims against these assets. An income statement is a statement summarizing the firm's revenues and expenses over an accounting period. Net sales are shown at the top of each statement, after which various costs, including income taxes, are subtracted to obtain the net income available to common shareholders. The bottom of the statement reports earnings and dividends per share.

b. Common Shareholders' Equity (Net Worth) is the capital supplied by common shareholders--capital stock, paid-in capital, retained earnings, and, occasionally, certain reserves. Paid-in capital is the difference between the stock's par value and what shareholders paid when they bought newly issued shares. Retained earnings is the portion of the firm's earnings that have been saved rather than paid out as dividends.

c. The statement of retained earnings shows how much of the firm's earnings were retained in the business rather than paid out in dividends. Note that retained earnings represents a claim against assets, not assets per se. Firms retain earnings primarily to expand the business, not to accumulate cash in a bank account. The statement of cash flows reports the impact of a firm's operating, investing, and financing activities on cash flows over an accounting period.

d. Depreciation is a non-cash charge against tangible assets, such as buildings or machines. It is taken for the purpose of showing an asset's estimated dollar cost of the capital equipment used up in the production process. Amortization is a non-cash charge against intangible assets, such as goodwill. EBITDA is earnings before interest, taxes, depreciation, and amortization.

e. Operating current assets are the current assets used to support operations, such as cash, accounts receivable, and inventory. It does not include short-term investments. Operating current liabilities are the current liabilities that are a natural consequence of the firm's operations, such as accounts payable and accruals. It does not include notes payable or any other short-term debt that charges interest. Net operating working capital is operating current assets minus operating current liabilities. Total net operating capital is sum of net operating working capital and operating long-term assets, such as net plant and equipment. Operating capital also is equal to the net amount of capital raised from investors. This is the amount of interest-bearing debt plus preferred stock plus common equity minus short-term investments.

f. Accounting profit is a firm's net income as reported on its income statement. Net cash flow, as opposed to accounting net income, is the sum of net income plus non-cash adjustments. NOPAT, net operating profit after taxes, is the amount of profit a company would generate if it had no debt and no financial assets. Free cash flow is the cash flow actually available for distribution to investors after the company has made all investments in fixed assets and working capital necessary to sustain ongoing operations.

g. Market value added is the difference between the market value of the firm (i.e., the sum of the market value of common equity, the market value of debt, and the market value of preferred stock) and the book value of the firm's common equity, debt, and preferred stock. If the book values of debt and preferred stock are equal to their market values, then MVA is also equal to the difference between the market value of equity and the amount of equity capital that investors supplied. Economic value added represents the residual income that remains after the cost of all capital, including equity capital, has been deducted.

h. A progressive tax means the higher one's income, the larger the percentage paid in taxes. Taxable income is defined as gross income less a set of exemptions and deductions which are spelled out in the instructions to the tax forms individuals must file. Marginal tax rate is defined as the tax rate on the last unit of income. Average tax rate is calculated by taking the total amount of tax paid divided by taxable income.

i. Capital gain (loss) is the profit (loss) from the sale of a capital asset for more (less) than its purchase price. Ordinary corporate operating losses can be carried backward for 3 years or forward for 10 years to offset taxable income in a given year.

2-2 The four financial statements contained in most annual reports are the balance sheet, income statement, statement of retained earnings, and statement of cash flows.

2-3 No because the $20 million of retained earnings would probably not be held as cash. The retained earnings figure represents the reinvestment of earnings by the firm. Consequently, the $20 million would be an investment in all of the firm's assets.

2-4 Operating capital is the amount of interest bearing debt, preferred stock, and common equity used to acquire the company's net operating assets. Without this capital a firm cannot exist, as there is no source of funds with which to finance operations.

2-5 NOPAT is the amount of net income a company would generate if it had no debt and held no financial assets. NOPAT is a better measure of the performance of a company's operations because debt lowers income. In order to get a true reflection of a company's operating performance, one would want to take out debt to get a clearer picture of the situation.

2-6 Free cash flow is the cash flow actually available for distribution to investors after the company has made all the investments in fixed assets and working capital necessary to sustain ongoing operations. It is the most important measure of cash flows because it shows the exact amount available to all investors.

2-7 If the business were organized as a partnership or a proprietorship, its income could be taken out by the owners without being subject to double taxation. Also, if you expected to have losses for a few years while the company was getting started, if you were *not* incorporated, and if you had outside income, the business losses could be used to offset your other income and reduce your total tax bill. These factors would lead you to *not* incorporate the business.

SOLUTIONS TO END-OF-CHAPTER PROBLEMS

2-1 Corporate yield = 9%; T = 35%
AT yield = 9%(1 - T)
= 9%(0.65) = 5.85%.

2-2 NI = \$3,000,000; EBIT = \$6,000,000; T = 40%; Interest = ?
Need to set up an income statement and work from the bottom up.

EBIT	\$6,000,000
Interest	1,000,000
EBT	\$5,000,000
Taxes (40%)	2,000,000
NI	\$3,000,000

$$\text{EBT} = \frac{\$3{,}000{,}000}{(1 - T)} = \frac{\$3{,}000{,}000}{0.6}$$

Interest = EBIT – EBT = \$6,000,000 – \$5,000,000 = \$1,000,000.

2-3 EBITDA = \$7,500,000; NI = \$1,800,000; Int = \$2,000,000; T = 40%; DA = ?

EBITDA	\$7,500,000	
DA	2,500,000	EBITDA – DA = EBIT; DA = EBITDA – EBIT
EBIT	\$5,000,000	EBIT = EBT + Int = \$3,000,000 + \$2,000,000
Int	2,000,000	(Given)
EBT	\$3,000,000	$\longrightarrow \dfrac{\$1{,}800{,}000}{(1 - T)} = \dfrac{\$1{,}800{,}000}{0.6}$
Taxes (40%)	1,200,000	
NI	\$1,800,000	(Given)

2-4 NI = \$3,100,000; DEP = \$500,000; AMORT = 0; NCF = ?
NCF = NI + DEP and AMORT = \$3,100,000 + \$500,000 = \$3,600,000.

2-5 NI = \$50,000,000; $R/E_{Y/E}$ = \$810,000,000; $R/E_{B/Y}$ = \$780,000,000; Dividends = ?

$$R/E_{B/Y} + NI - Div = R/E_{Y/E}$$
$$\$780{,}000{,}000 + \$50{,}000{,}000 - Div = \$810{,}000{,}000$$
$$\$830{,}000{,}000 - Div = \$810{,}000{,}000$$
$$\$20{,}000{,}000 = Div.$$

2-6

	Cash Provided or Used
Operating Activities	
Net Income	$30,000
Adjustments:	
Noncash adjustments:	
Amortization	6,000
Due to changes in working capital	
Increase in accounts receivable	(5,000)
Decrease in inventories	8,000
Increase in accounts payable	4,000
Net cash provided by operating activities	$43,000

2-7 Interest Income = $500

Capital Gain = $10,000/$50 = 200 shares × $2.50/share = $500

Interest Income		Capital Gain	
$500 × 16.67% =	$83.35	$500 × 16.67% × 0.5 =	$41.68
$500 × 22% =	$110.00	$500 × 22% × 0.5 =	$55.00
Total tax =	$193.35	Total tax =	$96.68
$500 - $193.35 =	$306.65	$500 - $96.68 =	$403.32

2-8

	Alpha	Beta
Sales	$2,000,000	$2,000,000
COGS (55%)	1,100,000	1,100,000
Gross Profit	$900,000	$900,000
Operating Expense	300,000	300,000
Depreciation	40,000	80,000
EBT	560,000	520,000
Taxes (40%)	224,000	208,000
Earnings After Tax	$336,000	$312,000
+ Amortization	40,000	80,000
Cash Flow	$376,000	$392,000

The difference between the cash flows is $16,000 ($392,000 - $376,000). Beta has larger cash flows because it claimed higher depreciation expense. Since depreciation is a tax deductible item, it creates a tax shield. The depreciation tax shield for Beta is $32,000 ($80,000 × 0.40), while the depreciation tax shield for Alpha is $16,000 ($40,000 × 0.40). The difference in tax shields of $16,000 accounts for the difference in cash flows.

2-9 EBIT = $750,000; DEP = $200,000; 100% Equity; T = 40%
NI = ?; NCF = ?

First, determine net income by setting up an income statement:

EBIT	$750,000
Interest	0
EBT	$750,000
Taxes (40%)	300,000
NI	$450,000

NCF = NI + DEP = $450,000 + $200,000 = $650,000.

2-10 a.

	Income Statement
Sales revenues	$12,000,000
Costs except depreciation	9,000,000
Depreciation	1,500,000
EBT	$ 1,500,000
Taxes (40%)	600,000
Net income	$ 900,000
Add back depreciation	1,500,000
Net cash flow	$ 2,400,000

b. If depreciation doubled, taxable income would fall to zero and taxes would be zero. Thus, net income would decrease to zero, but net cash flow would rise to $3,000,000. Berndt would save $600,000 in taxes, thus increasing its cash flow:

$$\Delta CF = T(\Delta\text{Depreciation}) = 0.4(\$1{,}500{,}000) = \$600{,}000.$$

c. If depreciation were halved, taxable income would rise to $2,250,000 and taxes to $900,000. Therefore, net income would rise to $1,350,000, but net cash flow would fall to $2,100,000.

d. You should prefer to have higher depreciation charges and higher cash flows. Net cash flows are the funds that are available to the owners to withdraw from the firm and, therefore, cash flows should be more important to them than net income.

2-11 NOPAT = EBIT(1 – Tax rate)

= $60 million(1 – 0.30) = $42 million

FCF = NOPAT - Net investment in operating capital

FCF = $42 million - $30 million

FCF = $12 million

Mkt Value of 10% of shares = 0.10($18 × 100 million) = $18 million

Since the $12 million of free cash flow is less than the market value of 10% of the company's shares, $18 million, Aeroparts will not be able to carry out its repurchase plan.

2-12 a. NOPAT $= \text{EBIT}(1 - \text{Tax rate})$
$= \$150{,}000{,}000(0.6)$
$= \$90{,}000{,}000.$

b. $\text{NOWC}_{07} = \text{Operating CA} - \text{operating CL}$
$= \$360{,}000{,}000 - (\$90{,}000{,}000 + \$60{,}000{,}000)$
$= \$210{,}000{,}000.$

$\text{NOWC}_{08} = \$372{,}000{,}000 - \$180{,}000{,}000 = \$192{,}000{,}000.$

c. $\text{Operating capital}_{07} = \begin{matrix}\text{Net plant} \\ \text{and equipment}\end{matrix} + \begin{matrix}\text{Net operating} \\ \text{working capital}\end{matrix}$
$= \$250{,}000{,}000 + \$210{,}000{,}000$
$= \$460{,}000{,}000.$

$\text{Operating capital}_{08} = \$300{,}000{,}000 + \$192{,}000{,}000$
$= \$492{,}000{,}000.$

d. FCF = NOPAT - Net investment in operating capital
$= \$90{,}000{,}000 - (\$492{,}000{,}000 - \$460{,}000{,}000)$
$= \$58{,}000{,}000.$

e. The large increase in dividends for 2008 can most likely be attributed to a large increase in free cash flow from 2007 to 2008, since FCF represents the amount of cash available to be paid out to shareholders after the company has made all investments in fixed assets and working capital necessary to sustain the business.

2-13

a. MVA = Market Value of Stock – Equity Capital supplied by shareholders
= (\$15/share) × (50,000,000 shares) - \$275,000,000 = $\underline{\$475{,}000{,}000}$.

b. ROIC = NOPAT/Operating Capital. NOPAT was previously calculated to = \$90,000,000.
Operating capital was also previously calculated to = \$492,000,000.
ROIC = \$90,000,000/\$492,000,000 = 0.183 = $\underline{18.3\%}$

c. EVA = (Operating capital)(ROIC – WACC) = (\$492,000,000)(0.183 – 0.12) = \$$\underline{30{,}996{,}000}$.

2-14 Bridgewater Equine Corporation: Statement of Cash Flows for 2008 (Millions of Dollars)

	Cash Provided or (Used)
Operating Activities	
Net income	$77.0
Adjustments:	
Noncash adjustments:	
Depreciation	30.0
Due to changes in working capital	
Increase in accounts receivable	(30.0)
Decrease in inventories	20.0
Increase in accounts payable	18.0
Increase in accruals	12.0
Net cash provided by operating activities	$127.0
Investing Activities	
Cash used to acquire fixed assets	($80.0)
Change in short-term investments	0.0
Net cash provided by investing activities	($80.0)
Financing Activities	
Increase in notes payable	$15.5
Increase in bonds outstanding	0.0
Payment of pref. and common dividends	(60.5)
Net cash provided by financing activities	($45.0)
Summary	
Net change in cash	$2.0
Cash at beginning of year	$10.0
Cash at end of year	$12.0

2-15

Prior Years	2005	2006	2007
Profit earned	$150,000	$150,000	$150,000
Carry-back credit	150,000	150,000	150,000
Adjusted profit	$ 0	$ 0	$ 0
Tax previously paid (40%)	60,000	60,000	60,000
Tax refund: Taxes previously paid	$ 60,000	$ 60,000	$ 60,000

Total check from Canada Revenue Agency = $60,000 + $60,000 + $60,000 = $180,000.

Future Years	2008	2009	2010	2011	2012
Estimated profit	$(650,000)	$150,000	$150,000	$150,000	$150,000
Carry-forward credit	0	150,000	50,000	0	0
Adjusted profit	$ 0	$ 0	$100,000	$150,000	$150,000
Tax (at 40%)	$ 0	$ 0	$ 40,000	$ 60,000	$ 60,000

SOLUTION TO SPREADSHEET PROBLEM

2-16 The detailed solution for the spreadsheet problem, ***Solution for FM1 Ch 02 Build a Model.xls*** is available on the textbook's Web site**.**

MINI CASE

Donna Jamison, a recent graduate of the University of Waterloo with four years of banking experience, was recently brought in as assistant to the chairman of the board of Computron Industries, a manufacturer of electronic calculators.

The company doubled its plant capacity, opened new sales offices outside its home territory, and launched an expensive advertising campaign. Computron's results were not satisfactory, to put it mildly. Its board of directors, which consisted of its president and vice-president plus its major shareholders (who were all local business people), was most upset when directors learned how the expansion was going. Suppliers were being paid late and were unhappy, and the bank was complaining about the deteriorating situation and threatening to cut off credit. As a result, Al Watkins, Computron's president, was informed that changes would have to be made, and quickly, or he would be fired. Also, at the board's insistence Donna Jamison was brought in and given the job of assistant to Fred Campo, a retired banker who was Computron's chairman and largest shareholder. Campo agreed to give up a few of his golfing days and to help nurse the company back to health, with Jamison's help.

Jamison began by gathering financial statements and other data. Assume that you are Jamison's assistant, and you must help her answer the following questions for Campo.

Balance Sheets

Assets	2007	2008
Cash	$ 9,000	$ 7,282
Short-term investments.	48,600	20,000
Accounts receivable	351,200	632,160
Inventories	715,200	1,287,360
Total current assets	$ 1,124,000	$ 1,946,802
Gross fixed assets	491,000	1,202,950
Less: accumulated depreciation	146,200	263,160
Net fixed assets	$ 344,800	$ 939,790
Total assets	$ 1,468,800	$ 2,886,592

Liabilities and equity	2007	2008
Accounts payable	$ 145,600	$ 324,000
Notes payable	200,000	720,000
Accruals	136,000	284,960
Total current liabilities	$ 481,600	$ 1,328,960
Long-term debt	323,432	1,000,000
Common stock (100,000 shares)	460,000	460,000
Retained earnings	203,768	97,632
Total equity	$ 663,768	$ 557,632
Total liabilities and equity	$ 1,468,800	$ 2,886,592

Income Statements

	2007	2008
Sales	$ 3,432,000	$ 5,834,400
Cost of goods sold	2,864,000	4,980,000
Other expenses	340,000	720,000
Depreciation	18,900	116,960
Total operating costs	$ 3,222,900	$ 5,816,960
EBIT	$ 209,100	$ 17,440
Interest expense	62,500	176,000
EBT	$ 146,600	$ (158,560)
Taxes (40%)	58,640	(63,424)
Net income	$ 87,960	$ (95,136)

Other data	2007	2008
Stock price	$ 8.50	$ 6.00
Shares outstanding	100,000	100,000
EPS	$ 0.880	$ (0.951)
DPS	$ 0.220	$ 0.110

Statement of retained earnings, 2008

Balance of retained earnings, 12/31/2007	$ 203,768
add: Net income, 2008	$ (95,136)
less: Dividend paid, 2008	$ (11,000)
Balance of retained earnings, 12/31/2008	$ 97,632

Statement of Cash Flows, 2008

Operating activities

Net income	$ (95,136)
Adjustments:	
noncash adjustments:	
depreciation	116,960
changes in working capital:	
change in accounts receivable	(280,960)
change in inventories	(572,160)
change in accounts payable	178,400
change in accruals	148,960
Net cash provided by operating activities	$ (503,936)

Investing activities

Cash used to acquire fixed assets	$ (711,950)
change in short term investments	$ 28,600
Net cash provided by operating activities	$ (683,350)

Financing activities

change in notes payable	$ 520,000
change in long-term debt	$ 676,568
change in common stock	$ -
payment of cash dividends	$ (11,000)
Net cash provided by financing activities	$ 1,185,568

Summary

Net change in cash	$ (1,718)
Cash at beginning of year	9,000
Cash at end of year	$ 7,282

a.	**What effect did the expansion have on sales and net income? What effect did the expansion have on the asset side of the balance sheet? What effect did it have on liabilities and equity?**

Answer: Sales increased by over by over $2.4 million, but net income fell by over $190,000. Assets almost doubled. Debt and funds provided by suppliers increased, but retained earnings fell due to the year's loss.

b.	**What do you conclude from the statement of cash flows?**

Answer: Net CF from operations = -$503,936, because of negative net income and increases in working capital. The firm spent $711,950 on FA. The firm borrowed heavily and sold some short-term investments to meet its cash requirements. Even after borrowing, the cash account fell by $1,718.

c.	**What is free cash flow? Why is it important? What are the five uses of FCF?**

Answer: FCF is the amount of cash available from operations for distribution to all investors (including shareholders and debtholders) after making the necessary investments to support operations. A company's value depends upon the amount of FCF it can generate.

1. Pay interest on debt.
2. Pay back principal on debt.
3. Pay dividends.
4. Buy back stock.
5. Buy nonoperating assets (e.g., marketable securities, investments in other companies, etc.)

d.	**What are operating current assets? What are operating current liabilities? How much net operating working capital and total net operating capital does Computron have?**

Answer: Operating current assets are the CA needed to support operations. OP CA include: cash, inventory, receivables. OP CA exclude: short-term investments, because these are not a part of operations. Operating current liabilities are the CL resulting as a normal part of operations. OP CL include: accounts payable and accruals. OP CA exclude: notes payable, because this is a source of financing, not a part of operations.

NOWC = operating CA – operating CL

$NOWC_{08}$ = ($7,282 + $632,160 + $1,287,360) - ($324,000 + $284,960)
= $1,317,842.

$NOWC_{07}$ = $793,800.

Total operating working capital = NOWC + net fixed assets.

Operating capital in 2008 = $1,317,842 + $939,790
= $2,257,632.

Operating capital in 2007 = $1,138,600.

e.	**What are Computron's net operating profit after taxes (NOPAT) and free cash flow (FCF)?**

ANSWER: NOPAT = EBIT(1 - TAX RATE)

$NOPAT_{08}$ = $17,440(1 - 0.4)
= $10,464.

$NOPAT_{07}$ = $125,460.

FCF = NOPAT - NET INVESTMENT IN CAPITAL
= $10,464 - ($2,257,632 - $1,138,600)
= $10,464 - $1,119,032
= -$1,108,568.

f.	**Calculate Computron's return on invested capital. Computron has a 10% cost of capital (WACC). Do you think Computron's growth added value?**

ANSWER: ROIC = NOPAT / TOTAL NET OPERATING CAPITAL.

$ROIC_{08}$= $10,464 / $2,257,632
= 0.5%.

$ROIC_{07}$ = 11.0%.

The ROIC of 0.5% is less than the WACC of 10%. Investors did not get the return they require. Note: high growth usually causes negative FCF (due to investment in capital), but that's OK if ROIC > WACC. For example, Home Depot has high growth, negative FCF, but a high ROIC.

g. Jamison also has asked you to estimate Computron's EVA. She estimates that the after-tax cost of capital was 10 percent in both years.

ANSWER: EVA = NOPAT- (WACC)(CAPITAL).

EVA_{08} = $10,464 - (0.1)($2,257,632)
= $10,464 - $225,763
= -$215,299.

EVA_{07} = $125,460 - (0.10)($1,138,600)
= $125,460 - $113,860
= $11,600.

h. What happened to Computron's market value added (MVA)?

Answer: MVA = market value of the firm - book value of the firm.

Market value = (# shares of stock)(price per share) + value of debt**.**

Book value = total common equity + value of debt.

If the market value of debt is close to the book value of debt, then MVA is market value of equity minus book value of equity. Assume market value of debt equals book value of debt.

Market value of equity 2008 = (100,000)($6.00) = $600,000.
Book value of equity 2008 = $557,632.
MVA_{08} = $600,000 - $557,632 = $42,368.

MVA_{07} = $850,000 - $663,768 = $186,232.

i. Given that Computron could have issued preferred shares yielding 6% net of costs, why did the company decide to borrow more from the bank at a rate of 7.5%?

Answer: Although the pre-tax cost of debt is more expensive than the preferred shares, interest costs are tax deductible whereas dividends are not. Therefore, on an after-tax basis the debt would cost Computron 7.5% × (1 – 0.4) = 4.5%, which is cheaper than the 6% preferred share cost.