

Finance

5th Edition

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Chapter 2

**Reviewing Financial
Statements**



Introduction₁

A **financial statement** provides an accounting-based picture of a firm's financial position.

An annual report is made up of four basic financial statements.

- Balance sheet.
- Income statement.
- Statement of cash flows.
- Statement of retained earnings.

Introduction₂

Reports are used by accountants as a picture of past financial performance.

Finance professionals use financial statements to draw inferences about the future.

Balance Sheet

The **balance sheet** reports firm's assets, liabilities and equity at a point in time.

$$\textit{Assets} = \textit{Liabilities} + \textit{Equity}$$

Assets of firm appear on left side.

Liabilities and equity appear on right side.

- Both assets and liabilities are listed in decreasing order of **liquidity**, that is, the time and effort needed to convert the accounts to cash.
 - Equity never matures, and therefore appears last.

Table 2.1 - Balance Sheet for DPH

DPH TREE FARM, INC. Balance Sheet as of December 31, 2021 and 2020 (in millions of dollars)

	<u>2021</u>	<u>2020</u>		<u>2021</u>	<u>2020</u>
Assets			Liabilities and Equity		
Current assets			Current liabilities		
Cash and marketable securities	\$ 24	\$ 25	Accrued wages and taxes	\$ 20	\$ 15
Accounts receivable	70	65	Accounts payable	55	50
Inventory	<u>111</u>	<u>100</u>	Notes payable	<u>48</u>	<u>45</u>
Total	\$205	\$190	Total	\$ 123	\$110
Fixed assets			Long-term debt	<u>192</u>	<u>190</u>
Gross plant and equipment	\$368	\$300	Total debt	315	300
Less: Accumulated depreciation	<u>53</u>	<u>40</u>	Stockholders' equity		
Net plant and equipment	\$315	\$260	Preferred stock (5 million shares)	\$ 5	\$ 5
Other long-term assets	50	50	Common stock and paid-in surplus (20 million shares)	40	40
Total	\$365	\$310	Retained earnings	<u>210</u>	<u>155</u>
Total assets	<u>\$570</u>	<u>\$500</u>	Total	\$ 255	\$200
			Total liabilities and equity	<u>\$570</u>	<u>\$500</u>

Assets

Current assets normally convert to cash within one year.

- For example, cash and marketable securities, accounts receivable, and inventory.

Fixed assets have a useful life exceeding one year.

- Physical (tangible) assets.
 - For example, net plant and equipment.
- Less tangible, long-term assets.
 - For example, patents and trademarks.

Liabilities

Liabilities are funds provided to the firm by lenders.

- **Current liabilities** constitute the firm's obligations due within one year.
 - For example, accrued wages and taxes, accounts payable, and notes payable.
- **Long-term debt** include those obligations with maturities of more than one year.
 - For example, long-term loans and bonds with maturities greater than one year.

Stockholders' Equity

Stockholders' equity is the difference between a firm's total assets and total liabilities.

- **Preferred stock** is a hybrid security with characteristics of both long-term debt and common stock.
- **Common stock and paid-in-surplus** is the fundamental ownership claim in public or private company.
- **Retained earnings** are company profits that are kept by the firm rather than distributed to the stockholders as cash dividends.

Managing the Balance Sheet

Managers must monitor a number of issues underlying items reported on their firms' balance sheets:

- Accounting method for fixed asset depreciation.
- Level of net working capital.
- Liquidity position of the firm.
- Method for financing the firm's assets.
 - Equity or debt.
- Difference between firm's book value and true market value.

Accounting Method for Fixed Asset Depreciation

Managers can choose the accounting method they use to record depreciation against their fixed assets.

- Straight-line method.
 - Commonly chosen when reporting income to the firm's stockholders.
- MACRS method.
 - Typically used when computing taxes, as it accelerates depreciation, resulting in lower taxable income, which leads to lower taxes in the early years of a project's life.

Net Working Capital

$$\text{Net Working Capital} = \text{Current assets} - \text{Current liabilities}$$

Net working capital is a measure of the firm's ability to pay obligations as they come due.

Healthy firms have positive net working capital values.

Liquidity₁

Liquidity refers to two dimensions.

- Ease with which the firm can convert an asset to cash.
- Degree to which such a conversion takes place at a fair market value.

Current assets remain relatively liquid.

- For example, cash.

Fixed assets remain relatively illiquid.

- For example, buildings and equipment.

Liquidity₂

Liquidity is double-edged sword.

- The good?
 - The more liquid assets a firm holds, the less likely the firm will be to experience financial distress.
- The bad?
 - Liquid assets generate little or no profits for a firm.

Managers must carefully consider this trade-off.

Debt versus Equity Financing

Financial leverage refers to the extent to which a firm chooses to finance its ventures or assets by issuing debt securities.

- Magnifies gains and losses.
 - Debt holders have a fixed claim on firm's cash flows (interest paid on securities and principal repayments).
 - Stockholders claim any cash flows left after debt holders are paid.
- Choice of firm's **capital structure** represents management's risk and return preference.

Debt versus Equity Financing

Impact of Capital Structure on a Firm's EPS

Consider a firm with an EBIT of \$750,000. The firm finances its assets with \$1,600,000 debt (costing 5 percent and all is tax deductible) and 200,000 shares of stock selling at \$6.00 per share. To reduce the firm's risk associated with this financial leverage, the firm is considering reducing its debt by \$600,000 by selling an additional 100,000 shares of stock. The firm's tax rate is 21 percent. The change in capital structure will have no effect on the operations of the firm. Thus, EBIT will remain at \$750,000. Calculate the dilution in the firm's EPS from this change in capital structure.

SOLUTION:

The EPS before and after this change in capital structure is illustrated below:

Change	Before Capital Structure Change		After Capital Structure Change	
EBIT		\$750,000		\$750,000
Less: Interest	$(\$1,600,000 \times 0.05)$	<u>80,000</u>	$(\$1,000,000 \times 0.05)$	<u>50,000</u>
EBT		\$670,000		\$700,000
Less: Taxes (21%)		<u>140,700</u>		<u>147,000</u>
Net income		\$529,300		\$553,000
Divided by # of shares		<u>200,000</u>		<u>300,000</u>
EPS		\$ 2.65		\$ 1.84

The change in capital structure would dilute the stockholders' EPS by \$0.81.

Book Value versus Market Value

In many cases, book values differ widely from market values.

- The **book (or historical cost) value** is the amount the firm paid for the assets.
 - Under GAAP, assets appear on the balance sheet at what the firm paid for them, regardless of what those assets might be worth today if the firm were to sell them.
- The **market value** is the amount the firm would get if it sold the assets.

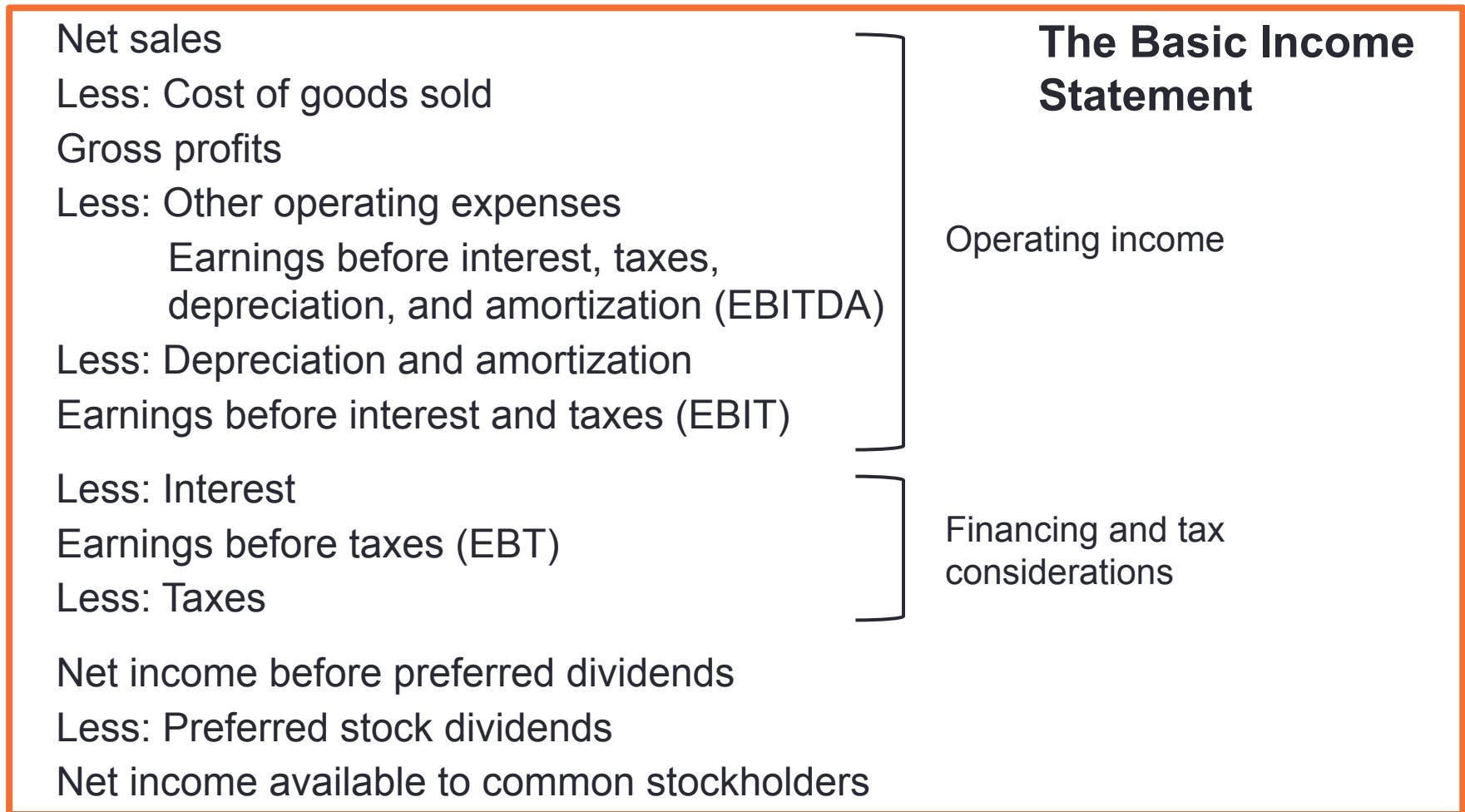
Income Statement

The **income statement** shows the total revenues that a firm earns and the total expenses the firm incurs to generate those revenues over a specific period of time.

- The top part of the income statement reports the firm's operating income.
- The bottom part of the income statement summarizes the firm's financial and tax structure.

Income Statement Structure

FIGURE 2.2



DPH Tree Farm Income Statement

TABLE 2.2 Income Statement for DPH Tree Farm, Inc.

DPH TREE FARM, INC. Income Statement Balance Sheet as of December 31, 2021 and 2020 (in millions of dollars)		
	<u>2021</u>	<u>2020</u>
Net sales (all credit)	\$ 315	\$ 275
Less: Cost of goods sold	<u>131</u>	<u>120</u>
Gross profits	\$ 184	\$ 155
Less: Other operating expenses	<u>17</u>	<u>15</u>
Earnings before interest, taxes, depreciation, and amortization (EBITDA)	\$ 167	\$ 140
Less: Depreciation and amortization	<u>13</u>	<u>12</u>
Earnings before interest and taxes (EBIT)	\$ 154	\$ 128
Less: Interest	<u>16</u>	<u>18</u>
Earnings before taxes (EBT)	\$ 138	\$ 110
Less: Taxes	<u>29</u>	<u>23</u>
Net income	<u>\$ 109</u>	<u>\$ 87</u>
Less: Preferred stock dividends	<u>\$ 10</u>	<u>\$ 10</u>
Net income available to common stockholders	\$ 99	\$ 77
Less: Common stock dividends	<u>44</u>	<u>44</u>
Addition to retained earnings	\$ 55	\$ 33
Per (common) share data:		
Earnings per share (EPS)	\$ 4.95	\$ 3.85
Dividends per share (DPS)	2.22	2.22
Book value per share (BVPS)	12.50	9.75
Market value (price) per share (MVPS)	17.25	15.60

Income/Firm Value Summary Below the Bottom Line

$$\text{Earnings per share (EPS)} = \frac{\text{Net income available to common stockholders}}{\text{Total shares of common stock outstanding}}$$

$$\text{Dividends per share (DPS)} = \frac{\text{Common stock dividends paid}}{\text{Numbers of shares of common stock outstanding}}$$

$$\text{Book value per share (BVPS)} = \frac{\text{Common stock} + \text{Paid-in surplus} + \text{Retained earnings}}{\text{Numbers of shares of common stock outstanding}}$$

Market value per share (MVPS) = Market price of the firm's common stock

Corporate Income Taxes₁

Firms taxed on earnings.

U.S. tax code determines corporate tax obligations – overseen by Congress.

- Tax rate changes driven by changes in administration or other changes in the business or public environment.
- Tax Cut and Jobs Act (TCJA) of 2017.
 - Permanently lowers corporate taxes from a progressive schedule (where the highest tax rate was 35%) to a flat 21% beginning in 2018.

Corporate Income Taxes₂

Average tax rate.

- Percentage of each dollar of taxable income that the firm pays in taxes.

$$\text{Average tax rate} = \frac{\text{Tax liability}}{\text{Taxable income}}$$

Marginal tax rate.

- Amount of additional taxes a firm must pay out for every additional dollar of taxable income it earns.

Corporate Income Taxes

Calculation of Corporate Taxes

Indian Point Kennels, Inc.'s, 2021 Income Statement is reported below (in millions of dollars). Determine the firm's 2021 tax liability, net income, average tax rate, and marginal tax rate.

Indian Point Kennels, Inc., Income Statement for 2021 (in Millions of Dollars)	
Net Sales (all credit)	\$ 475
Less: Cost of Goods Sold	<u>245</u>
Gross Profits	\$ 230
Less: Other Operating Expenses	<u>110</u>
EBITDA	\$ 120
Less: Depreciation and Amortization	<u>12</u>
Earnings before Interest and Taxes (EBIT)	\$ 108
Less: Interest	<u>38</u>
Earnings before Taxes (EBT)	\$ 70
Less: Taxes	
Net Income	<u><u>\$</u></u>

Corporate Income Taxes

SOLUTION:

With \$120,000,000 of EBITA, Indian Point Kennels is allowed to deduct only \$36,000,000 ($\$120,000,000 \times 30$ percent) of its \$38,000,000 in net interest expense. Thus,

$$\begin{aligned}\text{Taxable income} &= \text{EBIT} && - \text{Allowable interest deduction} \\ &= \$108,000,000 && - \$36,000,000 = \$72,000,000\end{aligned}$$

$$\begin{aligned}\text{Tax liability} &= 0.21 \times \text{Taxable income} \\ &= 0.21 (\$72,000,000) = \$15,120,000\end{aligned}$$

The 30 percent cap on the allowable interest deduction results in an increase in Indian Point Kennels's tax liability of \$420,000 [$0.21(\$38,000,000 - \$36,000,000)$].

$$\begin{aligned}\text{Net Income} &= \text{EBT} - \text{Tax Liability} \\ &= \$70,000,000 - \$15,120,000 = \$54,880,000\end{aligned}$$

The average tax rate for Indian Point Kennels, Inc., comes to:

$$\begin{aligned}\text{Average tax rate} &= \frac{\text{Tax liability}}{\text{Taxable income}} \\ &= \$15,120,000 / \$72,000,000 = 21.0\%\end{aligned}$$

If Indian Point Kennels earned \$1 more of taxable income, it would pay 21 cents (its tax rate of 21 percent) more in taxes. Thus, the firm's marginal tax rate is 21 percent.

Interest and Dividends Received

Interest is taxable with two exceptions.

- Interest on state and local government bonds are federally tax-exempt.
- One corporation owns stock in another corporation.
 - 50% of dividends received from the other corporation are considered tax exempt.
 - Taxed on remaining 50% of dividends received at the receiving corporation's tax rate.

Interest and Dividends Paid

Interest payments appear on the income statement as an expense item.

- They are deducted from income before calculating taxable income.

Dividends paid to shareholders by corporations are not tax deductible.

- Encourages managers to finance with debt, which is less expensive than using equity.
 - Due to the deductible nature of interest paid by firm.

Statement of Cash Flows

The **statement of cash flows** is a financial statement that shows firm's cash flows over given period of time.

- Reports the amounts of cash the firm has generated and distributed during a particular time period.

Bottom line on the statement of cash flows reflects difference between cash sources and uses.

- Equal to the change in cash and marketable securities on the firm's balance sheet over a period of time.

GAAP Accounting Principles

Company accountants use GAAP principles to prepare firm income statements.

- Revenue recognition and actual cash outflows incurred with production may occur at a different time than GAAP principles allow.
- GAAP principles.
 - Revenue recognized at the time of sale.
 - Production and other expenses shown on the income statement as the sales of those goods take place.

Sources and Uses of Cash¹

An activity that increases cash is a *cash source*.

- Increasing liabilities (or equity).
- Decreasing noncash assets.

An activity that decreases cash is a *cash use*.

- Decreasing liabilities (or equity).
- Increasing noncash assets.

Sources and Uses of Cash₂

Four categories are used to separate cash flows on the statement of cash flows:

1. Cash flows from operating activities.
2. Cash flows from investing activities.
3. Cash flows from financing activities.
4. Net change in cash and marketable securities.

DPH Tree Farm Statement of Cash Flows

TABLE 2.3 Statement of Cash Flows for DPH Tree Farm, Inc.

DPH TREE FARM, INC. Statement of Cash Flows for Year Ending December 31, 2021 (in millions of dollars)	
	<u>2021</u>
Section A. Cash flows from operating activities	
Net income	\$109
Additions:	
Depreciation	13
Increase in accrued wages and taxes (\$20 – \$15)	5
Increase in accounts payable (\$55 – \$50)	5
Subtractions:	
Increase in accounts receivable (\$65 – \$70)	–5
Increase in inventory (\$100 – \$111)	<u>–11</u>
Net cash flow from operating activities	\$116
Section B. Cash flows from investing activities	
Subtractions:	
Increase in fixed assets (\$300 – \$368)	–\$ 68
Increase in other long-term assets (\$50 – \$50)	<u>0</u>
Net cash flow from investing activities	–\$ 68
Section C. Cash flows from financing activities	
Additions:	
Increase in notes payable (\$48 – \$45)	
Increase in long-term debt (\$192 – \$190)	\$ 3
Increase in common and preferred stock (\$40 – \$40) + (\$5 – \$5)	2
Subtractions:	0
Preferred stock dividends paid	–10
Common stock dividends paid	<u>–44</u>
Net cash flow from financing activities	<u>–\$ 49</u>
Section D. Net change in cash and marketable securities	<u>–\$ 1</u>

Cash Flows from Operations

Cash flows that are the direct result of the production and sale of the firm's products are **cash flows from operations**, and include:

- Net income (adding back depreciation).
- Change in working capital accounts other than cash and operations-related short-term debt.

Positive cash flows from operations is what gives the firm value.

Cash Flows from Investing Activities

Cash flows associated with the purchase or sale of fixed or other long-term assets are **cash flows from investing activities.**

- Shows inflows and outflows from changes in long-term investing activities.

Cash Flows from Financing Activities

Cash flows from financing activities result from debt and equity financing transactions and include:

- Issuing short-term debt.
- Issuing long-term debt.
- Issuing stock.
- Using cash to pay dividends.
- Using cash to pay off debt.
- Using cash to buy back stock.

Net Change in Cash and Marketable Securities

The sum of the cash flows from operations, investing activities, and financing activities is the **net change in cash and marketable securities** (that is, the bottom line of the statement of cash flows).

- Reconciles to the net change in cash and marketable securities account on the balance sheet over period of analysis.

Positive bottom line indicates cash inflows exceeded cash outflows for the period.

Free Cash Flow₁

Free cash flows is the cash actually available for distribution to the investors in the firm after the investments that are necessary to sustain the firm's ongoing operations are made.

Free Cash Flow₂

Firms generate operating cash flow (OCF) after they have paid necessary operating expenses and taxes.

Net operating profit after taxes (NOPAT) is the net profit a firm earns after taxes, but before any financing costs.

Investment in operating capital (IOC) includes gross investments in fixed assets, current assets, and spontaneous current liabilities.

Free Cash Flow₃

Firms with positive free cash flow (FCF) have funds available for distribution to investors.

Potential implications for firms with negative FCF.

- May be experiencing operating or managerial problems.
- May be investing heavily in operating capital to support growth.
 - Note: FCF might be negative while OCF is positive.

Free Cash Flow Equation

$$\begin{aligned} \text{FCF} &= [\text{EBIT}(1 - \text{Tax rate}) + \text{Depreciation}] - [\Delta \text{ Gross fixed assets} \\ &\quad + \Delta \text{ Net operating working capital}] \\ &= [\text{NOPAT} + \text{Depreciation}] - \text{Investment in operating capital} \\ &= \text{Operating cash flow} - \text{Investment in operating capital} \end{aligned}$$

Free Cash Flow

Calculating Free Cash Flow

From [Tables 2.1](#) and [2.2](#), in 2021, DPH Tree Farm, Inc., had EBIT of \$154 million, a tax rate of 21 percent (\$29m/\$138m), and depreciation expense of \$13 million. Therefore, DPH Tree Farm's operating cash flow was

$$\begin{aligned} OCF &= EBIT (1 - \text{Tax rate}) + \text{Depreciation} \\ &= \$154\text{m} (1 - 0.21) + \$13\text{m} = \$134.66\text{m} \end{aligned}$$

DPH Tree Farm's gross fixed assets increased by \$68 million between 2020 and 2021. The firm's current assets increased by \$15 million and spontaneous current liabilities increased by \$10 million (\$5 million in accrued wages and taxes and \$5 million in accounts payable). Therefore, DPH's investment in operating capital for 2021 was

$$\begin{aligned} IOC &= \Delta \text{Gross fixed assets} + \Delta \text{Net operating working capital} \\ &= \$68\text{m} + (\$15\text{m} - \$10\text{m}) = \$73\text{m} \end{aligned}$$

Accordingly, what was DPH Tree Farm's free cash flow for 2021?

SOLUTION:

$$\begin{aligned} FCF &= \text{Operating cash flow} - \text{Investment in operating capital} \\ &= \$134.66\text{m} - \$73\text{m} = \$61.66\text{m} \end{aligned}$$

In other words, in 2021, DPH Tree Farm, Inc., had cash flows of \$61.66 million available to pay its stockholders and debt holders.

Statement of Retained Earnings

The **statement of retained earnings** reconciles net income earned during a given period and any cash dividends paid with the change in retained earnings over the period.

- Advantages of reinvesting.
 - Less expensive than raising capital from outside sources (equity markets).
 - Allows the firm to grow by providing additional funds that can be spent on plant and equipment.

Cautions in Interpreting Financial Statements

GAAP standards required for financial statements.

Firms can use **earnings management** with GAAP accounting rules.

- Firms may wish to smooth earnings.
- Firms utilize different depreciation methods, making comparison across firms difficult.

Sarbanes-Oxley Act passed in 2002.

- Aims to prevent deceptive accounting and management practices.

Hometask

1. Read Chapter 2
2. Answer the questions p.60
3. Look through Examples 2-1, 2-4, 2-5, 2-6 from the book and Lecture slides
4. Read Corporate income tax (word)
5. Try self-test problem with solutions p.56