Understanding Financial Statements

2.1

To invest or not to invest?

- What kind of information about a company would be helpful in determining whether or not to invest in a company?

To invest or not to invest?

- What kind of information about a company would be helpful in determining whether or not to invest in a company?
  - record of accomplishment of profitable operations
  - earning a profit (net income) year after year
  - steady stream of case coming in
  - manageable level of debt

- The FINANCIAL STATEMENT gives us information about these things.

To invest or not to invest?

- What kind of information about a company would be helpful in determining whether or not to invest in a company?
  - record of accomplishment of profitable operations
  - earning a profit (net income) year after year
  - steady stream of case coming in
  - manageable level of debt

- The FINANCIAL STATEMENT gives us information about these things.

Net worth

- Net worth is the amount by which a company’s or individual’s assets exceed the company’s or individual’s liabilities.
- a net worth statement is a snapshot of where you stand financially at any point in time.
- Banks use net worth statements for individuals and corporations seeking loans.
- These reporting documents for corporations are called ”financial statements”

Financial Statements

Individuals	Corporations
• Called a “net worth statement • Add your assets (cash, investments, pension plans) in one column • Add your liabilities (debts) in another column • Subtract your liabilities from your assets to find net worth • This is what you would be left with if you sold everything and paid off all you owe.	• Similar to personal use! • Tell us how a business is performing, where it stands financially • Most important statement in the “annual report”

Basic Questions Investors Ask

1. What is the company's financial position at the end of the fiscal year?
2. How well did the company operate during the fiscal period?
3. On what did the company decide to use its profits?
4. How much cash did the company generate and spend during the fiscal period?

Each of these questions has a financial statement that answers the question.

A fiscal year (operating cycle) can be any 12-month term, but is usually Jan 1 – Dec 31 of a calendar year

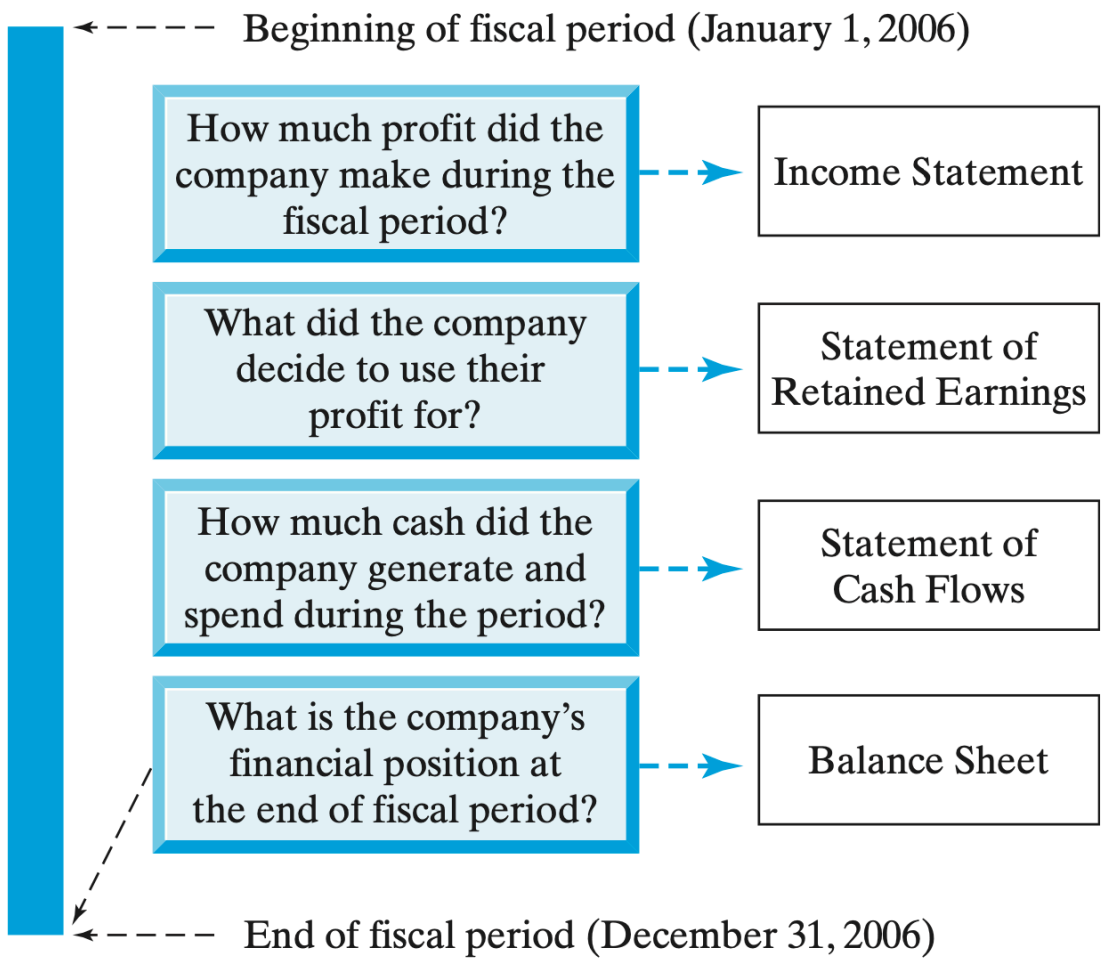

Figure 2.2 Information reported on the financial statements.

Engineering Decisions

- Engineers are often responsible for equipment acquisition (capital expenditure).
- This requires estimation of savings and costs + degree of risk
- This estimation will affect the business' *bottom line* (profitability), and thus the company's stock price.
- Therefore, an engineering should understand the various financial statements to communicate with upper management

Bottom line is slang for net income or accounting profit.

The Balance Sheet

- What is the company's financial position at the end of the reporting period?
- AKA "statement of financial position"
- reports three main categories:
  - assets
  - liabilities
  - stockholder's equity
- Assets are arranged in order of liquidity (most liquid on top)
- Liabilities: in order of payment (most pressing on top)
- Current assets and liabilities are important, thus totaled, broken out

The accounting equation

Assets = Liabilities + Owners' Equity

- Every transaction can be expressed in terms of its effect on accounting equation.

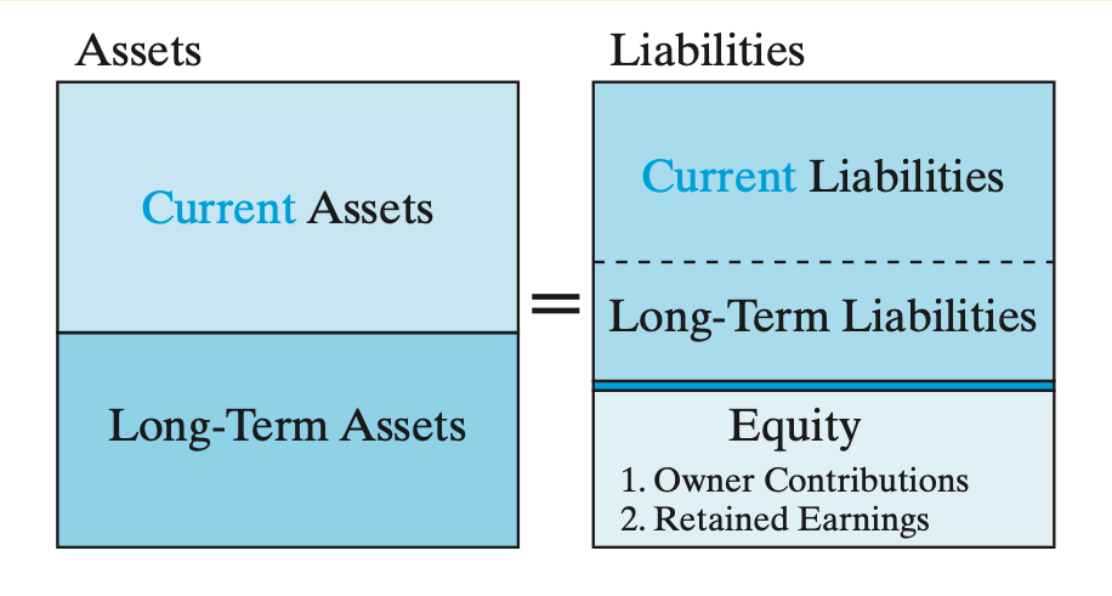

TABLE 2.1 Consolidated Statements of Financial Position (in millions) for Dell, Inc.

	January 28, 2005	January 30, 2004
Assets		
Current assets:		
Cash and cash equivalents	$ 4,747	$ 4,317
Short-term investments	5,060	835
Accounts receivable, net	4,414	3,635
Inventories	459	327
Other	2,217	1,519
Total current assets	16,897	10,633
Property, plant, and equipment, net	1,691	1,517
Investments	4,319	6,770
Other noncurrent assets	308	391
Total assets	$ 23,215	$ 19,311
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 8,895	$ 7,316
Accrued and other	5,241	3,580
Total current liabilities	14,136	10,896
Long-term debt	505	505
Other noncurrent liabilities	2,089	1,630
Total liabilities	16,730	13,031
Commitments and contingent liabilities (Note 8)	—	—
Stockholders' equity:		
Preferred stock and capital in excess of $.01 par value; shares issued and outstanding: none	—	—
Common stock and capital in excess of $.01 par value; shares authorized: 7,000; shares issued: 2,769 and 2,721, respectively	8,195	6,823
Treasury stock, at cost; 284 and 165 shares, respectively	(10,758)	(6,539)
Retained earnings	9,174	6,131
Other comprehensive loss	(82)	(83)
Other	(44)	(52)
Total stockholders' equity	6,485	6,280
Total liabilities and stockholders' equity	$ 23,215	$ 19,311

Source: *Annual Report*, Dell Corporation, 2005.

Assets

- The dollar amount shown in the assets portion of the balance sheet represents how much the company owns at the time it issues the report.
- **Current assets** can be converted to cash or its equivalent in less than one year.
  - Cash, Accounts Receivable (money owed to firm), Inventories
- **Fixed assets** are relatively permanent and take time to convert into cash.
  - land, buildings, machinery, cars [depreciation is considered!]
- **Other assets**
  - copyrights, franchises, goodwill (payment for business above fair market value)

Liabilities

- Liabilities are where the company got funds to acquire assets
- **Current Liabilities** – debts which must be paid within one year
  - wages, salaries, interest, rent, taxes, etc (owed, but no yet paid)
- **Other Liabilities** – long-term (more than 1 year)
  - bonds, mortgages, long-term notes

Stockholder’s Equity

- Stockholders’ equity is the portion of the assets provided by the investors (owners)
- This is the amount available to the owners after all other debts have been paid
- Includes preferred & common stock, treasury stock, capital surplus & retained earnings
- Preferred stock is a hybrid between common stock and debt (must be paid before common stock in case of bankruptcy)

The Income Statement

- indicates whether the company is making or losing money during a stated *period*, usually a year

Basic Income Statement Equation

Revenue

–

Expenses

Net Income (Loss)

TABLE 2.2 **Consolidated Statements of Income (in millions, except per share amounts) Dell, Inc.**

	Fiscal Year Ended		
	January 28, 2005	January 30, 2004	January 31, 2003
Net revenue	$ 49,205	$ 41,444	$ 35,404
Cost of revenue	40,190	33,892	29,055
Gross margin	9,015	7,552	6,349
Operating expenses:			
Selling, general, and administrative	4,298	3,544	3,050
Research, development, and engineering	463	464	455
Total operating expenses	4,761	4,008	3,505
Operating income	4,254	3,544	2,844
Investment and other income, net	191	180	183
Income before income taxes	4,445	3,724	3,027
Income tax provision	1,402	1,079	905
Net income	$ 3,043	$ 2,645	$ 2,122
Earnings per common share:			
Basic	$ 1.21	$ 1.03	$ 0.82
Diluted	$ 1.18	$ 1.01	$ 0.80
Weighted average shares outstanding:			
Basic	2,509	2,565	2,584
Diluted	2,568	2,619	2,644

Source: *Annual Report*, Dell Corporation, 2005.

Definitions

- **Revenue** is the income from goods sold and services rendered during a given accounting period.
- **Net revenue** represents gross sales, less any sales return and allowances.
- Shown on the next several lines are the expenses and costs of doing business, as de- ductions from revenue. The largest expense for a typical manufacturing firm is the expense it incurs in making a product (such as labor, materials, and overhead), called the **cost of revenue** (or cost of goods sold).
- Net revenue less the cost of revenue gives the **gross margin**.

Definitions

- Next, we subtract any other operating expenses from the operating income. These other operating expenses are expenses associated with paying interest, leasing machinery or equipment, selling, and administration. This results in the **operating income**.
- Finally, we determine the **net income** (or net profit) by subtracting the income taxes from the taxable income. Net income is also commonly known as *accounting income*.

Earnings per Share

- We compute the EPS by dividing the available earnings to common stockholders by the number of shares of common stock outstanding.

The Cash Flow Statement

- The income statement (previous slides) ignores two other important business activities for the period: financing and investing activities

TABLE 2.3 Consolidated Statements of Cash Flows (in millions) Dell, Inc.

	Fiscal Year Ended		
	January 28, 2005	January 30, 2004	January 31, 2003
Cash flows from operating activities:			
Net income	$ 3,043	$ 2,645	$ 2,122
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	334	263	211
Tax benefits of employee stock plans	249	181	260
Effects of exchange rate changes on monetary assets and liabilities denominated in foreign currencies	(602)	(677)	(537)
Other	78	113	60
Changes in:			
Operating working capital	1,755	872	1,210
Noncurrent assets and liabilities	453	273	212
Net cash provided by operating activities	5,310	3,670	3,538
Cash flows from investing activities:			
Investments:			
Purchases	(12,261)	(12,099)	(8,736)
Maturities and sales	10,469	10,078	7,660
Capital expenditures	(525)	(329)	(305)
Purchase of assets held in master lease facilities	—	(636)	—
Cash assumed in consolidation of Dell Financial Services, L.P.	—	172	—
Net cash used in investing activities	(2,317)	(2,814)	(1,381)
Cash flows from financing activities:			
Repurchase of common stock	(4,219)	(2,000)	(2,290)
Issuance of common stock under employee plans and other	1,091	617	265
Net cash used in financing activities	(3,128)	(1,383)	(2,025)
Effect of exchange rate changes on cash and cash equivalents	565	612	459
Net increase in cash and cash equivalents	430	85	591
Cash and cash equivalents at beginning of period	4,317	4,232	3,641
Cash and cash equivalents at end of period	$ 4,747	$ 4,317	$ 4,232

Source: *Annual Report*, Dell Corporation, 2005.

Understanding Financial Statements

2.2

Review

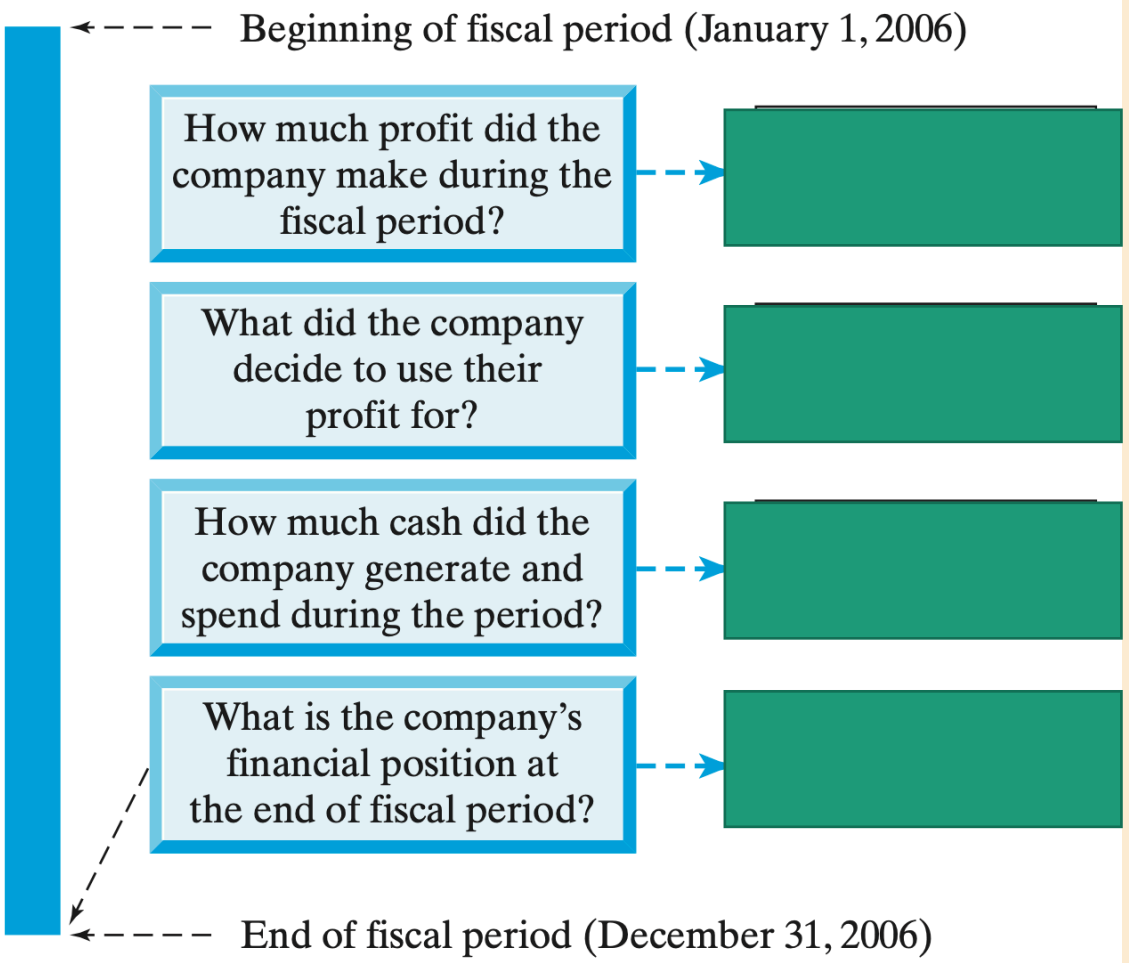

Figure 2.2 Information reported on the financial statements.

Review

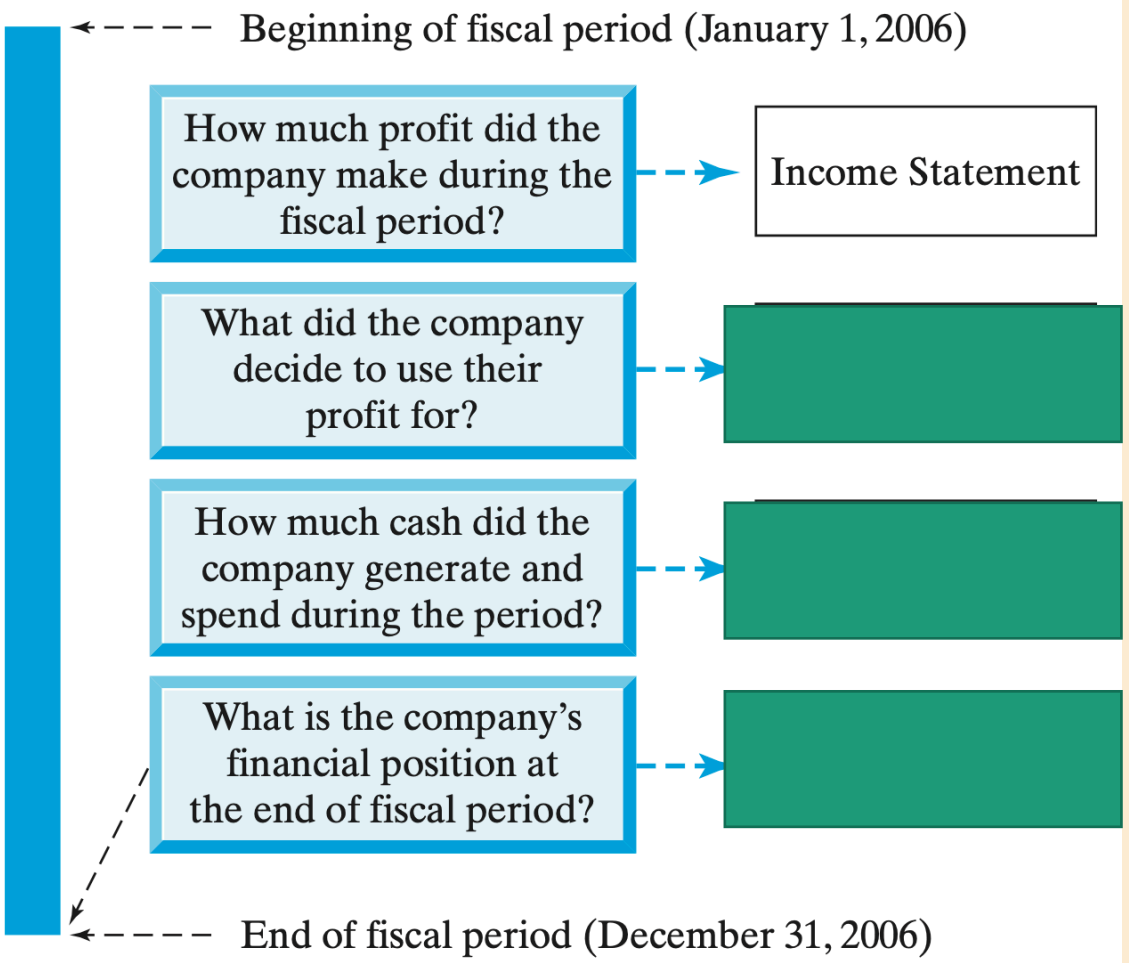

Figure 2.2 Information reported on the financial statements.

Review

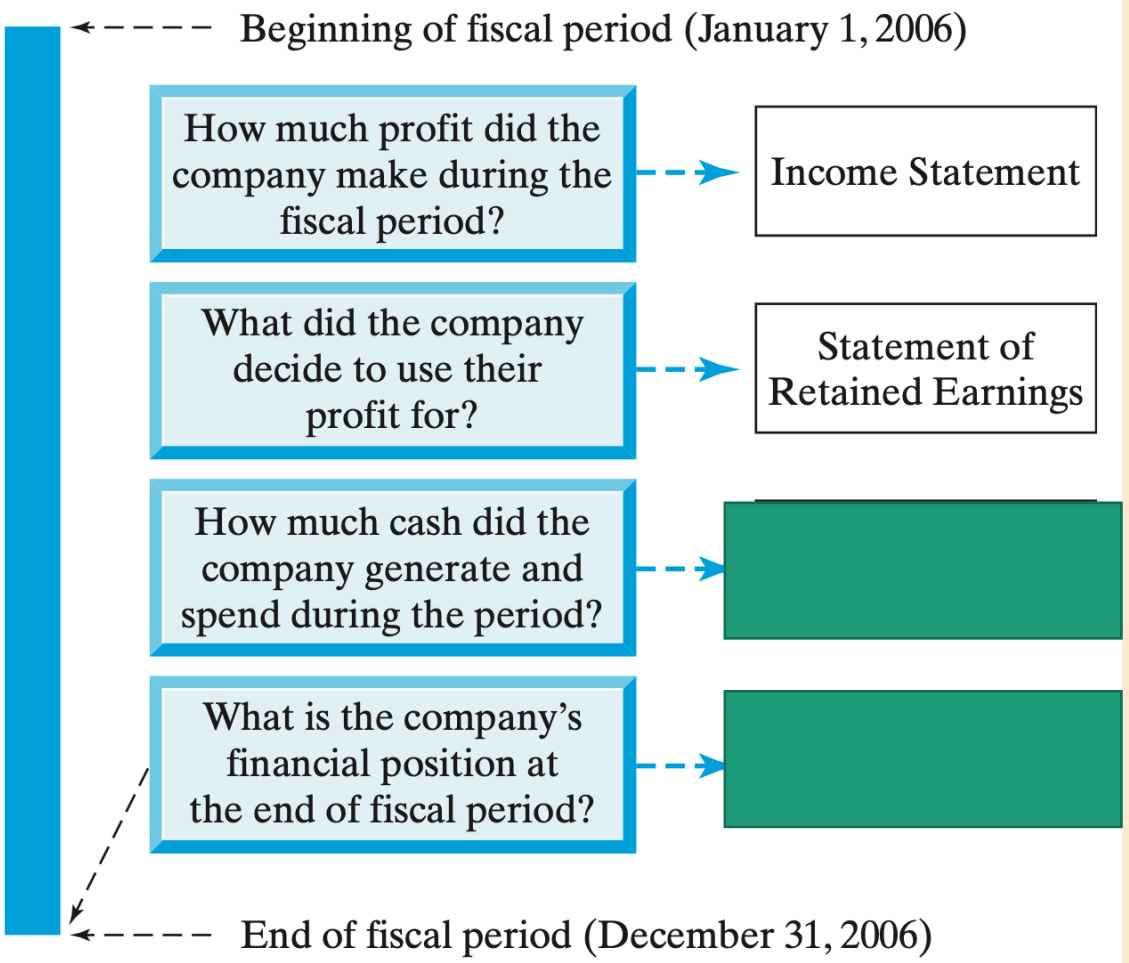

Figure 2.2 Information reported on the financial statements.

Review

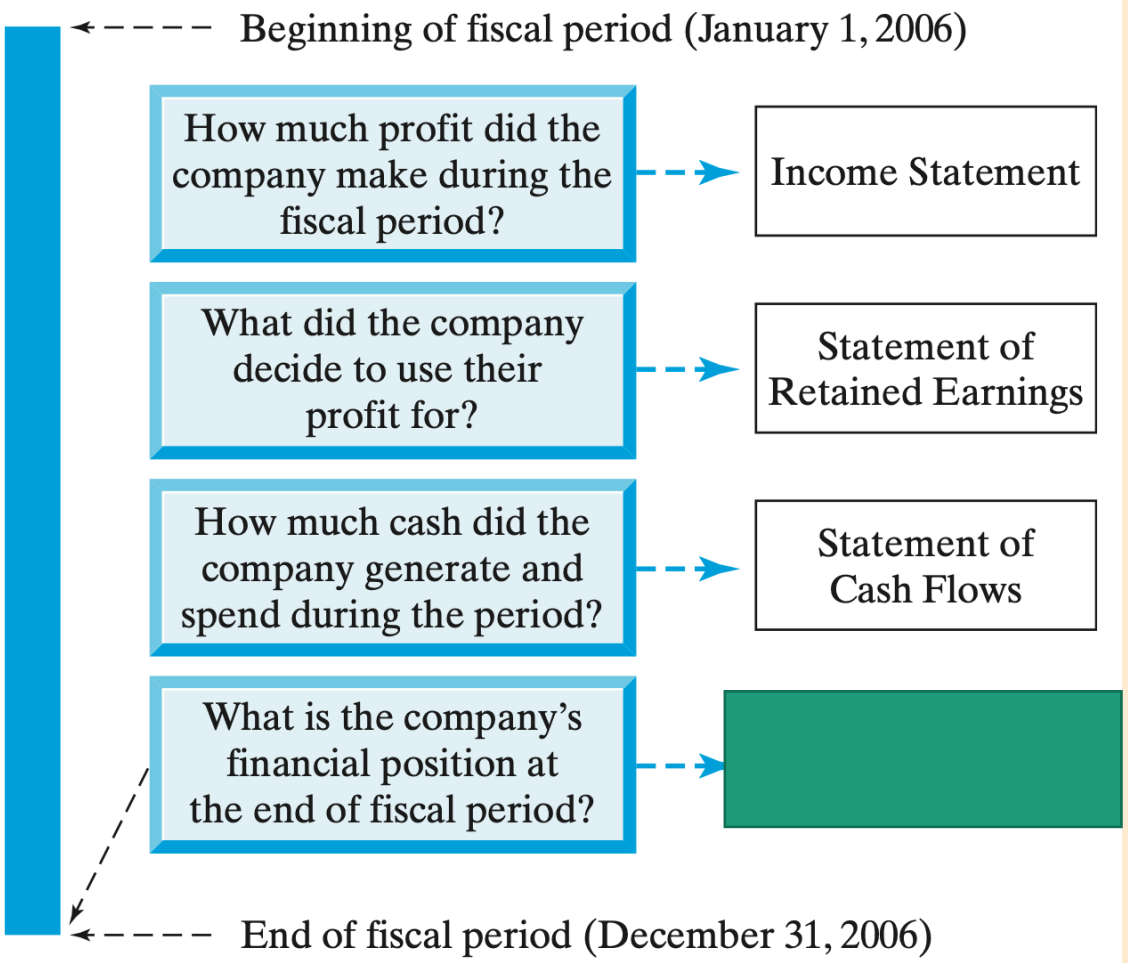

Figure 2.2 Information reported on the financial statements.

Review

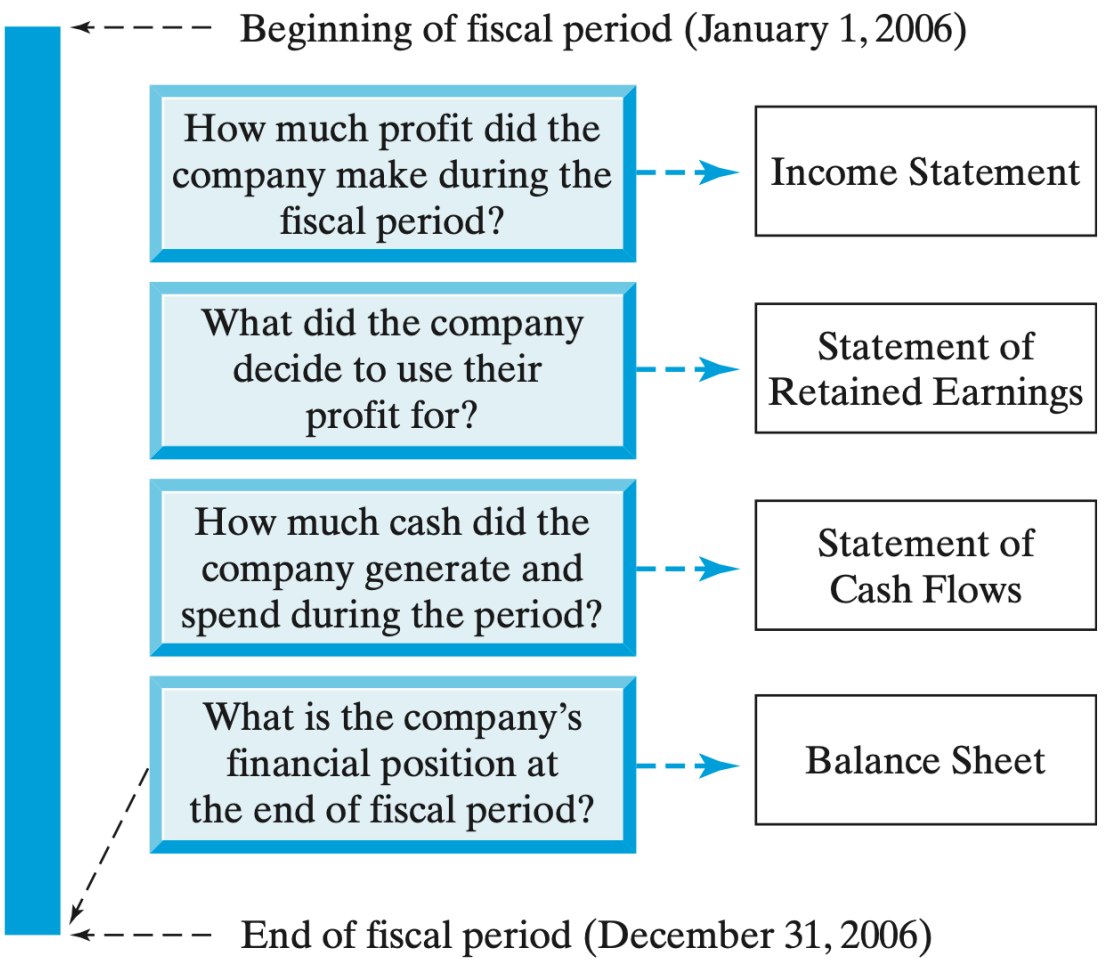

Figure 2.2 Information reported on the financial statements.

Making decisions

Financial statements are historical (in the past), but we are often concerned with the future.

- Stockholders are concerned with _____
- Creditors are concerned with _____
- Managers are concerned with _____
- Engineers are concerned with _____

Making decisions

Financial statements are historical (in the past), but we are often concerned with the future.

- Stockholders are concerned with future earnings and dividends.
- Creditors are concerned with the company's ability to repay its debts.
- Managers are concerned with the company's ability to finance future expansion.
- Engineers are concerned with planning actions that will influence the future course of business events.

Ratios

- Ratios can give helpful information for predicting the future.
- Five ratio categories:
  - debt management
  - liquidity
  - asset management
  - profitability
  - market trend

Financial Ratios

Debt Management

Ratios that show how a firm uses debt financing and its ability to meet debt repayment obligations.

- **Debt ratio**
- **Times-interest-earned ratio**

Market Trend

A set of ratios that relate the firm's stock price to its earnings and book value per share.

- **P/E ratio**
- **Market/book ratio**

Liquidity

Ratios that show the relationship of a firm's cash and other assets to its current liabilities.

- **Current ratio**
- **Quick ratio**

Asset Management

A set of ratios which measure how effectively a firm is managing its assets.

- **Inventory turnover ratio**
- **Day's sales outstanding ratio**
- **Total assets turnover ratio**

Profitability

A set of ratios which show the combined effects of liquidity, asset management, and debt on operating results.

- **Profit margin on sales**
- **Return on total assets**
- **Return on common equity**

1. Debt Management Analysis

- Capital has two forms:
  - **debt**
  - equity

- Short term **debt** financing: paid off within a few years
  - e.g. $10,000 for a special computer; loan from bank
- Long-term **debt** financing: raising capital by issuing a bond
  - e.g. !00 million for a construction project
  - Company goes to public for long-term borrowing
  - document recording the arrangement: “bond”

1. Debt Management Analysis

- Capital has two forms:
  - debt
  - **equity**
- proprietorship
  - money provided by owner
- corporation
  - preferred stock
    - gets stated dividend
  - common stock

1. Debt Management Analysis

- How much does a company use debt financing (financial leverage)?
  - check balance sheet
  - review income statement

- Two ratios:
  - debt ratio
  - times-interest-earned ratio

1. Debt Management Analysis

- **Debt Ratio**: a ratio that indicates what proportion of debt a company has relative to its assets

$$\text{Debt ratio} = \frac{\text{Total debt}}{\text{Total assets}}$$

- Includes current liabilities and long-term debt
- Higher interest rates for companies that are highly leveraged (protects the bank)

1. Debt Management Analysis

- **Times-Interest-Earned Ratio**: measure of the ability of a company's operations to provide protection to the long-term creditor
- Divide earnings before interest and income taxes (EBIT) by the yearly interest charges that must be met

$$\text{Times-interest-earned ratio} = \frac{\text{EBIT}}{\text{Interest expense}}$$

- measures the extent to which operating income can decline before the firm is unable to meet its annual interest costs

2. Liquidity Analysis

- **Current Ratio**:

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

- Company in trouble pays debt more slowly
- falling current ration: increasing current liabilities compared to current assets
- Rule of thumb is 2:1

2. Liquidity Analysis

- **Quick (Acid-Test) Ratio**:

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities}}$$

- a measure of "Can a company pay of its current liabilities if they came due immediately?"
- Check: how does the quick ratio compare to others in the industry?

3. Asset Management Analysis

- **Inventory Turnover**:
- how many times the company sold and replaced its inventory over a specific period (year)

$$\text{Inventory turnover ratio} = \frac{\text{Sales}}{\text{Average inventory balance}}$$

- average inventory balance: average of beginning and ending inventory
- (holding sales, lower ratio means company holds a large inventory. large inventory = low rate of return investment)

3. Asset Management Analysis

- **Day's Sales Outstanding (accounts receivable turnover)**:
- DSO is a rough measure of how many times a company's accounts receivable have been turned into cash during the year
- DSO = aka "average collection period"

$$\text{DSO} = \frac{\text{Receivables}}{\text{Average sales per day}} = \frac{\text{Receivables}}{\text{Annual sales/365}}$$

- large number: customers aren't paying on time (poor money management or customers in financial trouble)

3. Asset Management Analysis

- **Total Assets Turnover**:
- how effectively the firm uses its total assets in generating its revenues

$$\text{Total assets turnover ratio} = \frac{\text{Sales}}{\text{Total assets}}$$

4. Profitability Analysis

- **Profit Margin on Sales**:
- profit/dollar of sales

$$\text{Profit margin on sales} = \frac{\text{Net income available to common stockholders}}{\text{Sales}}$$

- Recall that net income is income after taxes. Therefore, if two firms have identical operations in the sense that their sales, operating costs, and earnings before income tax are the same, but if one company uses more debt than the other, it will have higher interest charges. Those interest charges will pull net income down, and since sales are constant, the result will be a relatively low profit margin

4. Profitability Analysis

- **Return on Total Assets (ROA)**:
- a company's success in using its assets to earn a profit

$$\text{Return on total assets} = \frac{\text{Net income} + \text{interest expense}(1 - \text{tax rate})}{\text{Average total assets}}$$

- Adding interest expenses back to net income results in an adjusted earnings figure that shows what earnings would have been if the assets had been acquired solely by selling shares of stock

4. Profitability Analysis

- **Return on Common Equity**:
- how much profit a company generates with the money its shareholders have invested in it (how much income is earned for every $1 invested by common stockholders)

$$\text{Return on common equity} = \frac{\text{Net income available to common stockholders}}{\text{Average common equity}}$$

$$\text{ROE} = \frac{\text{Net income}}{\text{Stockholders' equity}} = \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Stockholders' equity}}.$$

$$\text{ROE} = (\text{Profit margin}) \times (\text{Asset turnover}) \times (\text{Financial leverage})$$

5. Market Value Analysis

- **Price-to-Earnings Ratio**:
- ”P/E” = how much investors are willing to pay per dollar of reported profits

$$P/E \text{ ratio} = \frac{\text{Price per share}}{\text{Earnings per share}}$$

- Higher for firms with high growth prospects

5. Market Value Analysis

- **Book Value per Share**:
- Assesses the well-being of the common stockholders is the book value per share, which measures the amount that would be distributed to holders of each share of common stock if all assets were sold at their balance-sheet carrying amounts and if all creditors were paid off

$$\text{Book value per share} = \frac{\text{Total stockholders' equity} - \text{preferred stock}}{\text{Shares outstanding}}$$

Let's Practice!

A. Number yourselves: 1, 2, 3, 4, 5
B. Work in groups to solve for ratios (e.g. all 1's in a group, all 2's in a group, etc)
C. After 5 minutes, rearrange in groups that have each number (1,2,3,4,5; 1,2,3,4,5, etc)

1. Debt Management

$$\text{Times-interest-earned ratio} = \frac{\text{EBIT}}{\text{Interest expense}}$$

$$\text{Debt ratio} = \frac{\text{Total debt}}{\text{Total assets}}$$

2. Liquidity

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities}}$$

3. Asset Management

$$\text{Inventory turnover ratio} = \frac{\text{Sales}}{\text{Average inventory balance}}$$

$$\text{DSO} = \frac{\text{Receivables}}{\text{Average sales per day}} = \frac{\text{Receivables}}{\text{Annual sales/365}}$$

$$\text{Total assets turnover ratio} = \frac{\text{Sales}}{\text{Total assets}}$$

4. Profitability

$$\text{Profit margin on sales} = \frac{\text{Net income available to common stockholders}}{\text{Sales}}$$

$$\text{Return on total assets} = \frac{\text{Net income} + \text{interest expense}(1 - \text{tax rate})}{\text{Average total assets}}$$

$$\text{ROE} = \frac{\text{Net income}}{\text{Stockholders' equity}} = \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Stockholders' equity}}.$$

5. Market Value

$$P/E \text{ ratio} = \frac{\text{Price per share}}{\text{Earnings per share}}$$

$$\text{Book value per share} = \frac{\text{Total stockholders' equity} - \text{preferred stock}}{\text{Shares outstanding}}$$

TABLE 2.4 Summary of Dts

Balance Sheet	January 28, 2005	January 30, 2004
Cash and cash equivalent	4,747	4,317
Accounts receivables, net	4,414	3,635
Inventories	459	327
Total current assets	16,897	10,633
Total assets	23,215	19,311
Total current liabilities	14,136	10,896
Long-term debt	505	505
Total liabilities	16,730	13,031
Common stock	8,195	6,823
Retained earnings	9,174	6,131
Total stockholders' equity	6,485	6,280

Income Statement		
Net revenue	49,205	41,444
Gross income (margin)	9,015	7,522
Operating income (margin)	4,254	3,544
Net income (margin)	3,043	2,645
Statements of Retained Earnings		
Beginning retained earnings	6,131	3,486
Net income	3,043	2,645
Ending retained earnings	9,174	6,131
Statement of Cash Flows		
Net cash from operating activities	5,310	3,670
Net cash used in investing activities	(2,317)	(2,814)
Net cash used in financing activities	(3,128)	(1,383)
Effect of exchange rate changes	565	612
Beginning cash position	4,317	4,232
Ending cash position	4,747	4,317

interest expenses: $11.29 million
tax rate = 31.5%
Stock sold for $41.50 in 2005
EPS = $1.21
income before income taxes = 4,445
shares outstanding: 2,509

	y 28, 5	January 30, 2004
Cash and cash equivalent	4,747	4,317
Accounts receivables, net	4,414	3,635
Inventories	459	327
Total current assets	16,897	10,633
Total assets	23,215	19,311
Total current liabilities	14,136	10,896
Long-term debt	505	505
Total liabilities	16,730	13,031
Common stock	8,195	6,823
Retained earnings	9,174	6,131
Total stockholders' equity	6,485	6,280

Income Statement		
Net revenue	49,205	41,444
Gross income (margin)	9,015	7,522
Operating income (margin)	4,254	3,544
Net income (margin)	3,043	2,645
Statements of Retained Earnings		
Beginning retained earnings	6,131	3,486
Net income	3,043	2,645
Ending retained earnings	9,174	6,131
Statement of Cash Flows		
Net cash from operating activities	5,310	3,670
Net cash used in investing activities	(2,317)	(2,814)
Net cash used in financing activities	(3,128)	(1,383)
Effect of exchange rate changes	565	612
Beginning cash position	4,317	4,232
Ending cash position	4,747	4,317