

Chapter 2 Lecture - Financial Statements, Taxes, and Cash Flow

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"Our books are balanced. 50% of our numbers are real and 50% are made up."

Learning Objectives

After studying this chapter, you should be able to:

LO1 Differentiate between accounting value (or "book" value) and market value.

LO2 Distinguish accounting income from cash flow.

LO3 Explain the difference between average and marginal tax rates.

LO4 Determine a firm's cash flow from its financial

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The Balance Sheet

- A snapshot of the firm's assets and liabilities at a given point in time ("as of ...")
- Assets
 - Left-hand side (or upper portion)
 - In order of decreasing liquidity
- Liabilities and Owners' Equity
 - Right-hand side (or lower portion)
 - In ascending order of when due to be paid
- Balance Sheet Identity
 - $\text{Assets} = \text{Liabilities} + \text{Stockholders' Equity}$

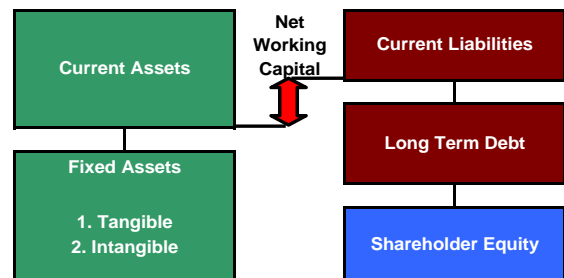


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The Balance Sheet

Total Value of Assets

Total Value of Liabilities and Shareholders' Equity



[Beginners' Guide to Financial Statements](#)

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The Balance Sheet

Balance sheets for U.S. Corporation

U.S. CORPORATION						
Balance Sheets as of December 31, 2015 and 2016						
(\$ in Millions)						
	2015		2016			
Assets					Liabilities and Owners' Equity	
Current assets					Current liabilities	
Cash	\$ 104	\$ 160			Accounts payable	
Accounts receivable	455	688			Notes payable	
Inventory	553	595			Total	
Total	<u>\$1,112</u>	<u>\$1,403</u>			<u>\$ 428</u>	<u>\$ 389</u>
Fixed assets					Long-term debt	
Net fixed assets	<u>\$1,644</u>	<u>\$1,709</u>			Owners' equity	
					Common stock and paid-in surplus	
					Retained earnings	
					Total	
Total assets	<u>\$2,756</u>	<u>\$3,112</u>			<u>\$1,920</u>	<u>\$2,269</u>
					Total liabilities and owners' equity	
					<u>\$2,756</u>	<u>\$3,112</u>

- **Assets** are generally listed based on how quickly they will be converted into cash. Current assets are things a company expects to convert to cash within one year. A good example is inventory.
- **Fixed assets** are those assets used to operate the business but that are not available for sale, such as trucks, office furniture and other property.
- **Net Fixed Assets** is the purchase price of all fixed assets (Land, buildings, equipment, machinery, vehicles, leasehold improvements) less accumulated Depreciation.

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Balance Sheet Classification: Overview

ASSETS

=

LIABILITIES

+

EQUITY

- Current assets
- Property, plant and equipment
- Investments
- Other assets

- Current liabilities
- Long-term debt
- Other liabilities

- Preferred and common stock¹ Contributed Capital
- Additional paid-in capital¹ Capital
- Retained earnings

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Elements of the Balance Sheet

How the money is invested

ASSETS

- Probable future economic benefits
- Obtained from past transactions or events

Where the money came from

LIABILITIES

- Probable future sacrifices of economic benefits
- Arising from present obligations
- To transfer assets or provide services in the future
- As a result of past transactions or events

EQUITY

- The residual interest in net assets.

ASSETS = LIABILITIES + EQUITY

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The Balance Sheet

- **Net working capital**
 - Current Assets minus Current Liabilities
 - Usually positive for a healthy firm

NWC = Current Assets – Current Liabilities

- **Liquidity**
 - Speed and ease of conversion to cash without significant loss of value
 - Valuable in avoiding financial distress

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Concept of Liquidity

- Ability to convert to cash quickly without a significant loss in value
- Liquid firms are less likely to experience financial distress
- But liquid assets typically earn a lower return
- Trade-off to find balance between liquid and illiquid assets



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Balance sheets for U.S. Corporation

U.S. CORPORATION					
Balance Sheets as of December 31, 2015 and 2016					
(\$ in Millions)					
	2015	2016		2015	2016
Assets			Liabilities and Owners' Equity		
Current assets			Current liabilities		
Cash	\$ 104	\$ 160	Accounts payable	\$ 232	\$ 266
Accounts receivable	455	688	Notes payable	196	123
Inventory	553	555	Total	\$ 428	\$ 389
Total	\$1,112	\$1,403			
Fixed assets					
Net fixed assets	\$1,644	\$1,709	Long-term debt	\$ 408	\$ 454
			Owners' equity		
			Common stock and paid-in surplus	600	640
			Retained earnings	1,320	1,629
			Total	\$1,920	\$2,269
Total assets	\$2,756	\$3,112	Total liabilities and owners' equity	\$2,756	\$3,112

Debt versus Equity

Shareholders' Equity = Assets - Liabilities

Versus

Book Value

Market Value

The balance sheet provides the **book value** of the assets, liabilities, and equity.

Market value is the **price** at which the assets, liabilities, or equity can actually be bought or sold.

1. Market value and book value are often very different. Why?
2. Which is more important to the decision-making process?

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Book versus Market

- Current assets and liabilities generally have book values and market values that are very close. This is not necessarily the case with the other assets, liabilities, and equity of the firm.
- Assets are listed at historical costs less accumulated depreciation – this may bear little resemblance to what they could actually be sold for today
- Liabilities are listed at face value. When interest rates change or the risk of the firm changes, the value of those liabilities change in the market as well. This is especially true for longer-term liabilities.

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Book versus Market

- Equity is the ownership interest in the firm. The market value of equity (stock price times number of shares) depends on the future growth prospects of the firm and on the market's estimation of the current value of ALL of the assets of the firm.
- The best estimate of the market value of the firm's assets is market value of liabilities + market value of equity.
- Market values are generally more important for the decision making process because they are more reflective of the cash flows that would occur today.

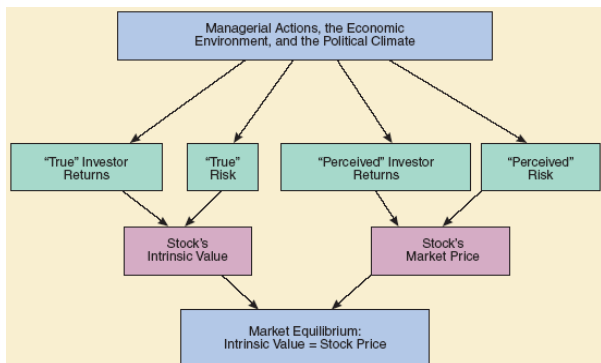
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Different Definitions of Value Reviewed

- **Intrinsic value**
 - Stock valuation based on an individual's expected free cash flows
- **Market value**
 - Market price is the value quoted in the market.
 - Based on aggregate market's expectations and is set by the *marginal investor*. It is the marginal investor's intrinsic value.
- **Fundamental Value**
 - This is the intrinsic value an analyst would calculate given complete and accurate information about a company's expected future free cash flows and risk.
 - Also called true intrinsic value.
 - Market value may not equal fundamental value over short term, but will tend towards it over the long term.

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Determinants of Intrinsic Value and Stock Prices



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KLINGON CORPORATION

Balance Sheets

Market Value versus Book Value

	Book	Market		Book	Market
	Assets			Liabilities and Shareholders' Equity	
Current assets	\$ 400	\$ 600	Long-term debt	\$ 500	\$ 500
Net fixed assets	700	1,000	Shareholders' equity	600	1,100
	<u>\$1,100</u>	<u>\$1,600</u>		<u>\$1,100</u>	<u>\$1,600</u>

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Income Statement

- The income statement measures performance over a specified period of time (period, quarter, year).
- Report revenues first and then deduct any expenses for the period
- End result = Net Income = “Bottom Line”
 - Dividends paid to shareholders
 - Addition to retained earnings
- Income Statement Equation:
 - Net Income = Revenue - Expenses

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U.S. CORPORATION 2016 Income Statement (\$ in Millions)		TABLE 2.2 Income statement for U.S. Corporation
Net sales	\$1,509	
Cost of goods sold	750	
Depreciation	65	
Earnings before interest and taxes	\$ 694	
Interest paid	70	
Taxable income	\$ 624	
Taxes	212	
Net income	\$ 412	
Dividends	\$103	
Addition to retained earnings	309	

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Noncash Items

- A primary reason that accounting income differs from cash flow is that an income statement contains noncash items.
- The most important of these is *depreciation*.
- Suppose a firm purchases a fixed asset for \$5,000 and pays in cash. Obviously, the firm has a \$5,000 cash outflow at the time of purchase. However, instead of deducting the \$5,000 as an expense, an accountant might depreciate the asset over a five-year period.
- If the depreciation is straight-line and the asset is written down to zero over that period, then $\$5,000/5 = \$1,000$ would be deducted each year as an expense.
- The important thing to recognize is that this \$1,000 deduction isn't cash—it's an accounting number. The actual cash outflow occurred when the asset was purchased.

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Time and Costs

- It is often useful to think of the future as having two distinct parts: *the short run and the long run*.
- The distinction has to do with whether costs are fixed or variable.
- The distinction between fixed and variable costs is important, at times, to the financial manager, but the way costs are reported on the income statement is not a good guide as to which costs are which.
- Accountants tend to classify costs as either product costs or period costs.
- Product costs include such things as raw materials, direct labor expense, and manufacturing overhead. These are reported on the income statement as costs of goods sold, but they include both fixed and variable costs.
- Similarly, period costs are incurred during a particular time period and might be reported as selling, general, and administrative expenses

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Earnings and Dividend Per Share

EARNINGS AND DIVIDENDS PER SHARE

Suppose U.S. had 200 million shares outstanding at the end of 2014. Based on the income statement on Slide 18, what was EPS? What were dividends per share?

From the income statement, U.S. had a net income of \$412 million for the year. Total dividends were \$103 million. Since 200 million shares were outstanding, we can calculate earnings per share and dividends per share as follows:

$$\begin{aligned}\text{Earnings per share} &= \text{Net income} / \text{Total shares outstanding} \\ &= \$412 / 200 = \$2.06 \text{ per share}\end{aligned}$$

$$\begin{aligned}\text{Dividends per share} &= \text{Total dividends} / \text{Total shares outstanding} \\ &= \$103 / 200 = \$0.515 \text{ per share}\end{aligned}$$

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Financial Statements

DEFINITION of 'Generally Accepted Accounting Principles - GAAP'

The common set of accounting principles, standards and procedures that companies use to compile their financial statements. GAAP are a combination of authoritative standards (set by policy boards) and simply the commonly accepted ways of recording and reporting accounting information.

- **GAAP Matching Principle:**
 - **Recognize revenue when it is fully earned**
 - **Match expenses required to generate revenue to the period of recognition**
- **Noncash Items**
 - **Expenses charged against revenue that do not affect cash flow**
 - **Depreciation = most important**

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Financial Statements

- **Time and Costs**
 - **Fixed or variable costs**
 - **Not obvious on income statement**
- **Earnings Management**
 - **Smoothing earnings**
 - **GAAP leaves "wobble room"**
 - **Global standardization of accounting**
 - **GAAP versus International Financial Reporting Standards**

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Taxes

- **The one thing we can rely on with taxes is that they are always changing!**
- **We must distinguish between marginal vs. average tax rates - See next slide**
- **Other taxes**
 - **State**
 - **Local (City or Town)**

Will vary by countries

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Corporate Progressive Taxes

- **Marginal Tax Rate:** The tax rate you would pay if you had **one more** taxable dollar
- **Average Tax Rate:** The tax rate you are paying on **all of your taxable income** which averages across **all of your corporate tax categories**

Tableable Income	Tax Rate
\$ 0- 50,000	15%
50,001- 75,000	25
75,001- 100,000	34
100,001- 335,000	39
335,001- 10,000,000	34
10,000,001- 15,000,000	35
15,000,001- 18,333,333	38
18,333,334+	35

TABLE 2.3
Corporate tax rates

Example: Marginal Vs. Average Rates

- Suppose your firm earns \$4 million in taxable income.
 - What is the firm's tax liability?
 - What is the average tax rate?
 - What is the marginal tax rate?
- If you are considering a project that will increase the firm's taxable income by \$1 million, what tax rate should you use in your analysis?

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Tax on \$4 million

Tax Liability on \$4,000,000

Corporate Tax Rates			Taxable	Tax
Taxable Income Levels		Tax Rate	Income	Liability
\$ -	\$ 50,000	15%	\$ 50,000	\$ 7,500
\$ 50,001	\$ 75,000	25%	\$ 25,000	\$ 6,250
\$ 75,001	\$ 100,000	34%	\$ 25,000	\$ 8,500
\$ 100,001	\$ 335,000	39%	\$ 235,000	\$ 91,650
\$ 335,001	\$ 10,000,000	34%	\$ 3,665,000	\$ 1,246,100
\$ 10,000,001	\$ 15,000,000	35%		
\$ 15,000,001	\$ 18,333,333	38%		
\$ 18,333,334	-	35%		
			\$ 4,000,000	\$ 1,360,000

Average Rate =	34%
Marginal Rate =	34%

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The Concept of Cash Flow

- Cash flow = one of the most important pieces of information that can be derived from financial statements
- The accounting Statement of Cash Flows does not provide the same information that we are interested in here
- Our focus: how cash is generated from utilizing assets and how it is paid to those who finance the asset purchase.

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Cash Flow From Assets

- **Cash Flow From Assets (CFFA)**
 - = **Operating Cash Flow (OCF)**
 - **Net Capital Spending (NCS)**
 - **Changes in NWC (ΔNWC)**
- **Cash Flow From Assets (CFFA)**
 - = **Cash Flow to Creditors (CF/CR)**
 - + **Cash Flow to Stockholders (CF/SH)**

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Example: U.S. Corporation

Balance Sheet				U.S. Corporation	
Assets		Liabilities & Owners' Equity		Income Statement	
	2009	2010		2009	2010
Current Assets			Current Liabilities		
Cash	\$104	\$160	Accounts Payable	\$232	\$260
Accounts Receivable	455	688	Notes Payable	196	121
Inventory	553	552	Total	\$420	\$380
Total	\$1,112	\$1,400			
Fixed Assets			Long-term debt	\$480	\$454
Net Fixed assets	\$1,644	\$1,709	Owners' equity		
			Common stock and paid-in surplus	600	640
			Retained earnings	1,320	1,625
			Total	\$1,820	\$2,289
Total assets	\$2,756	\$3,112	Total Liabilities & Owners' Equity	\$2,756	\$3,112

- **CFFA** = **OCF - NCS - ΔNWC**
- OCF** = **EBIT + depreciation - taxes**
= **\$694 + 65 - 212 = \$547**
- NCS** = **ending net FA - beginning net FA + depreciation**
= **\$1709 - 1644 + 65 = \$130**
- ΔNWC** = **ending NWC - beginning NWC**
= **(\$1403 - 389) - (\$1112 - 428) = \$330**
- **CFFA** = **547 - 130 - 330 = \$87**

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Example: U.S. Corporation

U.S. Corporation				U.S. Corporation	
Assets		Liabilities & Owners' Equity		Income Statement	
	2009	2010		2009	2010
Current Assets			Current Liabilities		
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- **CFFA** = **CF/CR (creditors) + CF/SH (shareholders)**
- CF/CR** = **interest paid - net new borrowing**
= **\$70 - (\$454 - 408) = \$24**
- CF/SH** = **dividends paid - net new equity**
= **\$103 - (\$640 - 600) = \$63**
- **CFFA** = **\$24 + \$63 = \$87**

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Cash Flow Summary

- The cash flow identity**
Cash flow from assets = Cash flow to creditors (bondholders) + Cash flow to stockholders (owners)
- Cash flow from assets**
Cash flow from assets = Operating cash flow - Net capital spending - Change in net working capital (NWC)
where
Operating cash flow = Earnings before interest and taxes (EBIT) + Depreciation - Taxes
Net capital spending = Ending net fixed assets - Beginning net fixed assets + Depreciation
Change in NWC = Ending NWC - Beginning NWC
- Cash flow to creditors (bondholders)**
Cash flow to creditors = Interest paid - Net new borrowing
- Cash flow to stockholders (owners)**
Cash flow to stockholders = Dividends paid - Net new equity raised

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