

Crash Course in Accounting & Financial Statement Analysis

Crash Course in Accounting & Financial Statement Analysis, Third Edition

Introduction

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Introduction

- Welcome to Wall Street Prep's Crash Course in Accounting & Financial Statement Analysis, Third Edition
- This is an exercise-based course designed to efficiently provide students and professionals who are pursuing a career in finance with practical, real-world accounting and financial statement analysis skills.
- This course also serves as the groundwork for those who intend to proceed with more rigorous financial training involving financial and valuation modeling.

What is accounting?

- Accounting is the language of business. It is a standard set of rules for measuring a firm's financial performance. Assessing a company's financial performance is important for many groups, including:
 - The firm's officers (managers and employees)
 - Investors (current and potential shareholders)
 - Lenders (banks)
 - General public
- Standard financial statements serve as a “yardstick” of communicating financial performance to the general public.
- For example, monthly sales released by McDonald's Corp. provide both its managers and the general public with an opportunity to assess the company's financial performance across major geographic segments (U.S., Europe, Asia Pacific, Middle East, and Africa).

Why is accounting important?

Making corporate decisions

- Suppose a telecom company is looking to acquire a regional company to boost its presence in that region. There are several potential targets that fit the bill. How does this company determine which of these, if any, companies would make a good acquisition candidate?

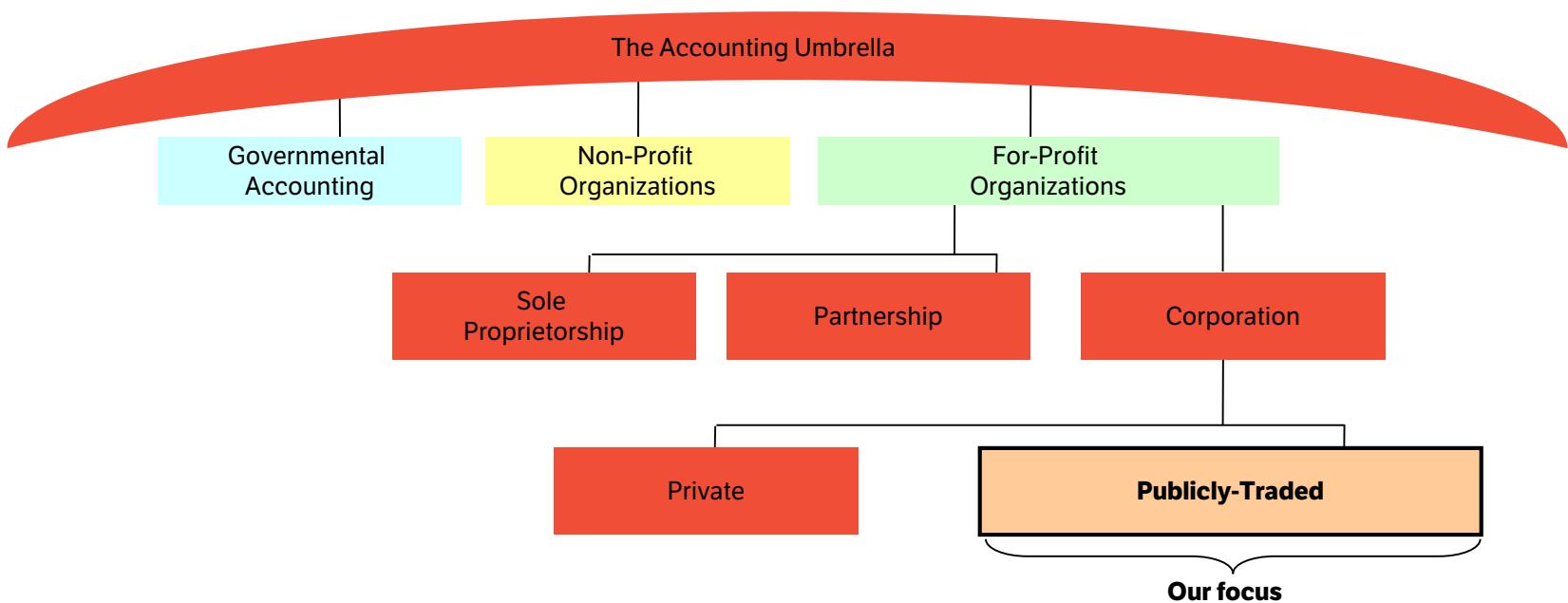
Making investment decisions

- A mutual fund is looking to invest in several diverse technology companies – Microsoft, Oracle, and Intel. How does this mutual fund determine in which of these, if any, companies it should make an investment?
- A major part of corporate and investment decisions relies on analyzing each of the companies' financial information in the above-mentioned cases.
- Accounting, the standard language by which such financial information can be assessed and compared, is fundamental to making these decisions.

Who uses accounting?

- Accounting is used by a variety of organizations – from the federal government to non-profit organizations to small businesses to corporations.
- We will be discussing accounting rules as they pertain to publicly-traded companies.

Who uses accounting?



Accounting regulations

- Accounting attempts to standardize financial information, and like any language, follows rules and regulations. What are these accounting rules, how are they established, and by whom?

Generally Accepted Accounting Principles (GAAP)

- In the United States, a governmental agency called the Securities and Exchange Commission (SEC) authorizes the Financial Accounting Standards Board (FASB) to determine U.S. accounting rules.
- FASB communicates these rules through the issuance of Statements of Financial Accounting Standards (SFAS). These statements make up the body of accounting rules known as the Generally Accepted Accounting Principles (GAAP).
- These rules have been developed to provide guidelines for financial accounting in order to ensure that businesses present their financial information in a fair, consistent, and straightforward basis. Financial statements must be prepared according to GAAP.

An overview of the SEC

- The Securities and Exchange Commission is a U.S. federal agency, which was established by the U.S. Congress in 1934.
- The agency's primary mission is "to protect investors and maintain the integrity of the securities markets," which includes the establishment and maintenance of accounting principles and regulations.

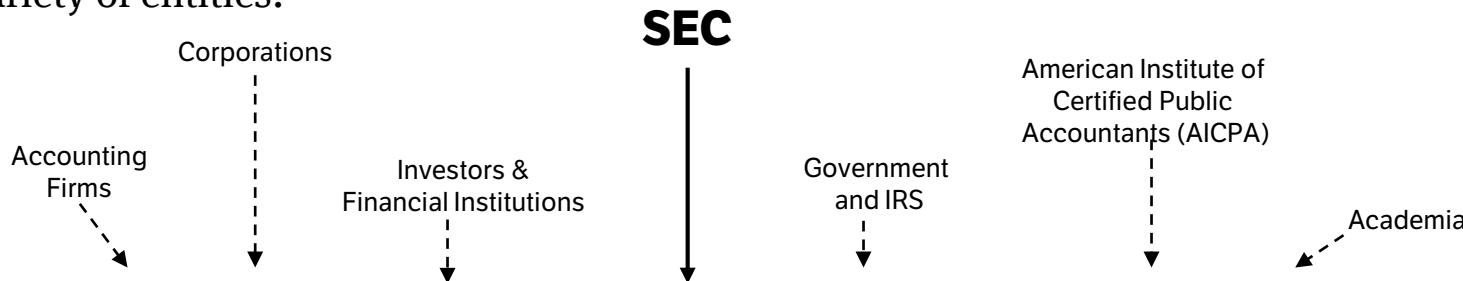
Securities & Exchange Commission (SEC)				
Divisions	Division of Corporate Finance	Division of Market Regulation	Division of Investment Management	Division of Enforcement
Major Oversight	Oversees financial reporting by corporations; Monitors the activities of FASB	Establishes and maintains market rules through regulation of stock exchanges and broker-dealers	Regulates investment companies and investment advisers	Oversees securities laws violations (insider trading, securities price manipulation, etc.)

An overview of FASB

- The SEC largely relies on the input of the **private sector** to establish and maintaining financial accounting and reporting standards
- The FASB was established in 1973 **as an independent body** to carry out the function of codifying these standards on the behalf of the SEC.
- FASB is composed of seven full-time members appointed for five years by the Financial Accounting Foundation (FAF), a “parent” organization.
- FASB formulates accounting standards through the issuance of **Statements of Financial Accounting Standards (SFAS)**. These statements make up the body of accounting rules known as the Generally Accepted Accounting Principles (GAAP).

An overview of FASB

- The FASB is independent, with close relations with the SEC, its decisions are influenced by a variety of entities:



Financial Accounting Standards Board (FASB)				
Types of FASB Pronouncements	Statements of Financial Accounting Standards (SFAS)	Interpretations	Financial Accounting Concepts	Emerging Issues Task Force Statements
	SFAS are considered Generally Accepted Accounting Principles (US GAAP)	Modifications or extensions of existing SFAS	Objectives and concepts underlying establishment of future SFAS	Identification of new financial transactions and establishment of “consensus” reporting practices for them

International Financial Reporting Standards (IFRS)

- While this course focuses on the US standards, over 100 countries, including the EU, UK, Canada, Australia, Russia (see map) have adopted a unified set of international accounting standards (IFRS).
- Many other countries like China, India, Brazil, are either actively pursuing convergence with IFRS or have incorporated IFRS standards into their national accounting standards.
- In 2014, the SEC backed away from the promise of complete convergence with IFRS, but the last decade of cooperation has already led to significant convergence of US GAAP and IFRS, meaning that in practice, global accounting standards are far more standardized than they have ever been.



Source: Globalexecutives.org

IFRS Global Map—Legend

- Blue – Adopted
- Gray – In Process
- White – Not Adopted

Summary

- Accounting is a standard language of measuring financial performance by a variety of organizations.
- Accounting follows Generally Accepted Accounting Principles (GAAP), which are guidelines for measuring and presenting financial information in a fair, consistent, and straight-forward basis.
- U.S. GAAP are developed by FASB on the behalf of the SEC, with input from a variety of interest groups.
- Over 100 countries, including the EU, UK, Canada, Australia, Russia (see map) have adopted a unified set of international accounting standards (IFRS).
- Although we have seen unprecedented convergence over the last few years between US GAAP and IFRS, some differences remain.
- **This course focuses on the US standards, but where there are major differences, we will identify them.**

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Basic Accounting Principles

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Assumptions, principles & constraints

- Generally Accepted Accounting Principles have been established as a way to standardize the presentation of financial information.
- FASB bases GAAP on several key theoretical assumptions, principles, and constraints. They are introduced here and will be revisited throughout the course.

Assumption 1: Accounting entity

- A company is considered a separate “living” enterprise, apart from its owners. In other words, a corporation is a “fictional” being – it has a name as well as a birth date and birth place (referred to as incorporation date and place, respectively); it is engaged in clearly-defined activities; regularly reports its financial health (through financial reports) to the general public; pays taxes; and can file lawsuits.

Assumption 2: Going concern

- A company is considered a “going concern” for the foreseeable future. In other words, a corporation is assumed to remain in existence indefinitely.
- This assumption dictates, for example, that company assets are recognized at values that assume the company will not, for example, have to sell assets at liquidation or fire sale prices.

Assumption 3: Measurement

- Financial statements must be reported in the national monetary unit.
- They can show only measurable activities of a corporation such as its quantifiable resources, its liabilities (money owed by it), amount of taxes facing it, etc. This excludes things like:
 - Customer loyalty, employee satisfaction , environmental awareness - while valuable, they are difficult to quantify.

Assumption 4: Periodicity

- Companies are required to file annual and interim reports
 - In the US and many other countries, quarterly and annual financial reports are required (some countries still require only annual or annual and half-year filings)
- An accounting year (fiscal year) is frequently (but not always) aligned with the calendar year (January 1 – December 31)
 - ExxonMobil and GE have December 31st as their fiscal year-end.
 - Microsoft (June 30th), Wal-Mart (January 31st), and Apple (September 29th) all have off-calendar year fiscal year ends.

Wrap-up

- We just covered 4 underlying assumptions in accounting:
 1. Accounting Entity
 2. Going Concern
 3. Measurement
 4. Periodicity
- We now turn to the major underlying accounting principles

Principle 1: Historical cost

- Financial statements report companies' resources at an initial historical cost.
- Let's assume a company purchased a piece of land for \$1 million ten years ago. Under US GAAP, it will continue to record this original purchase price (typically called book value) even though the market value (referred to as fair value) of this land has risen to \$10 million.
- Why is such undervaluation of a company's resources required?
 - Represents the easiest measurement method without a need for appraisal and revaluation.
 - Marking resources up to fair value allows for management discretion and subjectivity, which US GAAP attempts to minimize by using historical cost
 - IFRS is far more willing to allow this subjectivity to avoid misrepresenting the true value of assets (see below), although the high cost and lack of certainty around appraisals have limited adoption

Difference alert: US GAAP vs. IFRS

	US GAAP	IFRS
Long-lived assets <i>Property, plant, and equipment</i>	Write up not permitted (in line with the historical cost principle)	Write up or down to reflect fair market value permitted but rarely used

Principles 2 and 3: Accrual accounting

- Accrual accounting is one of the most important concepts in accounting, and governs the company's timing in recording its revenues (i.e. sales) and associated expenses.
- Principle #2: Revenue Recognition: Accrual basis of accounting dictates that revenues must be recorded when earned and measurable.
- Principle #3: Matching Principle: Under the matching principle, costs associated with making a product must be recorded during the same period as revenue generated from that product.

Exercise: Amazon.com sells a book

The following transactions occurred on the specified dates:	
6/5/13	Amazon.com purchases a book from a publisher for \$10
12/29/14	Amazon.com receives a \$20 credit card order for that book
1/4/15	The book is shipped to customer
2/1/15	Amazon.com receives cash

1. From the options above, when should Amazon.com record revenue?
2. From the options above, when should Amazon.com record expenses?

Principles 2 and 3: Accrual accounting

- Both revenue and expenses in the prior exercise should be recorded on 1/4/15, when the book was shipped to the customer.

Why can't companies immediately record these revenues and expenses?

- According to the revenue recognition principle, a company cannot record revenue until that order is shipped to a customer (only then, is the revenue actually earned) and collection from that customer, who used a credit card, is reasonably assured.

Why shouldn't Amazon.com record the expense when it actually bought the book?

- According to the matching principle, costs associated with the production of the book should be recorded in (matched to) the same period as the revenue from the book's sale.

Difference alert: US GAAP vs. IFRS

	US GAAP	IFRS
Accrual accounting	Uses accrual accounting	Uses accrual accounting
Revenue recognition	Very specific guidelines for revenue recognition for industries with unique issues (like software and real estate)	Same general guidelines, but not nearly as specific, leaving room for interpretation

Principle 4: Full disclosure

- Under the full disclosure principle, companies must reveal all relevant economic information that they determine to make a difference to its users.
- Such disclosure should be accomplished in the following sections of companies' reports:
 - Financial statements
 - Notes to financial statements
 - Supplementary information

Wrap-up

- We just covered 4 underlying principles in accounting:
 1. Historical Cost
 2. Accrual Accounting: Revenue Recognition
 3. Accrual Accounting: Matching Principle
 4. Full Disclosure
- We now turn to the major underlying accounting constraints.

Constraint 1: Estimates & judgments

- Certain measurements cannot be performed completely accurately, and must therefore utilize conservative estimates and judgments.
- For example, a company cannot fully predict the amount of money it will not collect from its customers, who having purchased goods from it on credit, ultimately decide not to pay. Instead, a company must make a conservative estimate based on its past experience with “bad” customers.

Constraint 2: Materiality

- Inclusion and disclosure of financial transactions in financial statements hinge on their size and effect on the company performing them.
- Note that materiality varies across different entities – a material transaction (taking out a \$1,000 loan) for a local lemonade stand is likely immaterial for General Electric, whose financial information is reported in billions of dollars.

Constraint 3: Consistency

- For each company, the preparation of financial statements must utilize measurement techniques and assumptions which are consistent from one period to another.
 - For example, companies can choose among several different accounting methods to measure the monetary value of their inventories. What matters is that a company consistently applies the same inventory method across different fiscal years.

Constraint 4: Conservatism

- Financial statements should be prepared with a downward measurement bias. Assets and revenues should not be overstated, while liabilities and expenses should not be understated.
 - Recall the historical cost principle, which requires a company to record the value of its resources at its original cost even if the current fair market value is considerably higher.
 - Accordingly, the historical cost principle is an example of conservatism – assets are not allowed to be overstated.

Summary of accounting assumptions, principles, constraints

Summary of Accounting Assumptions, Principles, Constraints

Accounting Entity	A corporation is considered a “living” enterprise i.e. a “fictional” being.
Going Concern	A corporation is assumed to remain in existence for the foreseeable future.
Measurement & Units of Measure	Financial statements show only measurable activities of a company. Financial statements must be reported in the national monetary unit (U.S. \$ for U.S. companies).
Periodicity	A company’s continuous life can be divided into measured periods of time for which financial statements are prepared. U.S. companies are required to file quarterly (10-Q) and annual (10-K) reports.
Historical Cost	Financial statements report companies’ resources and obligations at an initial historical cost. This conservative measure precludes constant appraisal and revaluation.
Revenue Recognition	Revenues must be recorded when earned and measurable.
Matching Principle	Costs of a product must be recorded during the same period as revenue from selling it.
Disclosure	Companies must reveal information determined to make a difference to its users.
Estimates & Judgments	Certain measurements cannot be performed completely accurately, and must therefore utilize conservative estimates and judgments.
Materiality	Inclusion of certain financial transaction in financial statements hinges on their size and that of a company performing them.
Consistency	For each company, preparation of financial statements must utilize measurement techniques and assumptions which are consistent from one reporting period to another.
Conservatism	A downward measurement bias is used in the preparation of financial statements. Assets and revenues should not be overstated while liabilities and expenses should not be understated.

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Financial Reporting

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Financial reporting overview

- Financial information, which accounting helps to standardize, is presented in the companies' financial reports.
- Companies must file periodic financial reports with the SEC – why?

“The laws and rules that govern the securities industry in the United States derive from a simple and straightforward concept: all investors, whether large institutions or private individuals, should have access to certain basic facts about an investment prior to buying it.

To achieve this, the SEC requires public companies to disclose meaningful financial and other information to the public, which provides a common pool of knowledge for all investors to use to judge for themselves if a company's securities are a good investment.

Only through the steady flow of timely, comprehensive and accurate information can people make sound investment decisions.”

- Securities and Exchange Commission

Finding financial reports

- Filings made with the SEC are public information and can be found on the SEC's official website – <http://www.sec.gov>
- For filings in other countries, there is usually some platform that is similar to the SEC, but less comprehensive, and may have a fee. Examples include:
 - UK: <http://www.companieshouse.gov.uk/>
 - Canada: http://www.sedar.com/homepage_en.htm



In addition to formal filings databases, you can usually find company filings for the recent past on:

- Company websites – ‘investor relations’ section
- Financial websites and services: Yahoo! Finance, Capital IQ, Thomson, Factset, etc.

Form 10-K (annual filing)

- At the end of each fiscal year, publicly-traded companies must file a 10-K report which includes a thorough overview of their businesses and finances as well as their financial statements.
- 10-K's must be filed within 60-90 days within year end, depending on the filer's status (large accelerated / accelerated /non-accelerated filer)

Why is the 10-K important?

- It is a required annual filing.
- 10-K usually provides the most detailed overview of companies' financial operations and regulations governing them.

Annual Report vs. 10-K

- The two terms are often used interchangeably, but be careful!
- Sometimes companies provide a “polished” Annual Report that summarizes data in the 10-K and adds marketing fluff but is not the complete 10-K
- As an analyst, the complete 10-K is the primary document for company data

Form 10-Q (quarterly)

- At the end of each quarter of their fiscal year (for the first three quarters of a fiscal year), publicly-traded companies also file a report with the SEC which includes financial statements and non-financial data.
- 10-Q's must be filed within 40-45 days of quarter end

10-K vs. 10-Q – what's the difference?

- Both 10-K's and 10-Q's include financial statements, important footnotes and management commentary on the state of the business, but 10-Ks are generally more detailed filings than 10-Qs
- A 10-K will usually contain more details regarding stock options, fixed and intangible assets, debt, and future expectations and include extensive management, as well as commentary on the state of the business (management discussion & analysis "MD&A").
- 10-K reports are audited by an independent firm, while 10-Q filings are reviewed by a CPA but are unaudited.
- This is important because an auditing firm may sometimes highlight certain financial information and valuation methodologies it believes do not conform with GAAP.

Other Important Filings

Form 8-K

- An 8-K is a required filing any time a company undergoes or announces a materially significant event such as an earnings press release, an acquisition, a disposal of assets, bankruptcy, etc. 8-Ks are usually filed within 4 days of the event.

Form 14A (Proxy statement)

- Form 14A is a required filing prior to companies' annual shareholder meetings. It contains detailed information about top officers and their compensations. The form often solicits shareholder votes (proxies) for Board nominees and other important matters.



Summary Of Other Financial Reports

Proxy	<ul style="list-style-type: none">DEF 14A is a notification to shareholders of matters to be brought before shareholders meeting. It solicits proxy. Especially useful when analyzing an acquisition because companies provide shareholders a lot of technical details regarding the deal when soliciting shareholder approval.
Securities offering <i>IPO, equity offered in merger, etc.</i>	<ul style="list-style-type: none">S-1 registration filed by a company when it decides to go public and sell securities and an Initial Public Offering (IPO). This document includes the prospectus – the company document outlining the companies operations to help investors make an informed decision about investing.S-2 and S-3 are required filings for secondary offerings.S-4 filed to register a securities offering in certain mergers or reorganizations.S-11 Filed by real estate companies (limited partnership and investment trusts).
Annual report of foreign companies	<ul style="list-style-type: none">20-F is an annual report filed by certain foreign issuers of securities trading in the U.S.

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Reading the 10-K



Introduction

- Truly the best way to begin getting a good grasp of how financial reports are organized and structured is simply by looking through them. 10-Ks follow a required structure:

Part 1

Item 1. Business

Item 1A. Risk Factors

Item 1B. Unresolved Staff Comments

Item 2. Properties

Item 3. Legal Proceedings

Item 4. Mine Safety Disclosures

Part 2

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters, and Issuer Purchases of Equity Securities

Item 6. Selected Financial Data

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

Item 8. Financial Statements and Supplementary Data

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Item 9A. Controls and Procedures

Item 9B. Other Information

Part 3

Item 10. Directors, Executive Officers and Corporate Governance

Item 11. Executive Compensation

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Item 13. Certain Relationships and Related Transactions, and Director Independence

Item 14. Principal Accounting Fees and Services

Part 4

Item 15. Exhibits and Financial Statement Schedules and Signatures

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Income Statement

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Roadmap

- Income statement
- Balance sheet
- Cash flow statement
- Financial statement analysis

What Is the Income Statement?

- The income statement is a financial report that depicts the operating performance of a company (i.e. revenues less expenses generated – i.e. profitability) over a specific period of time (typically a quarter or year).

Why is it Important?

- It facilitates the analysis of a company's growth prospects, cost structure, and profitability.
- Analysts can use the income statement to identify the components and sources ("drivers") of net earnings.

Also referred to as:

- The Consolidated Statement of Earnings
- The Profit and Loss (P&L) Statement
- Statement of Revenues and Expenses

Major income statement line items

Major Typical Components & definitions

Net Revenues	Total dollar payment for goods and services that are credited to an income statement over a particular time period.
Cost of Goods Sold	Cost of Goods sold represents a company's direct cost of manufacture (for manufacturers) or procurement (for merchandisers) of a good or service that the company sells to generate revenue.
Gross Profit	Revenues - Cost of Goods Sold
Selling, General & Administrative (SG&A)	Operating costs not directly associated with the production or procurement of the product or service that the company sells to generate revenue. Payroll, wages, commissions, meal and travel expenses, stationary, advertising, and marketing expenses fall under this line item.
Research & Development (R&D)	A company's activities that are directed at developing new products or procedures.
EBITDA	Earnings before interest, taxes, depreciation & amortization : Gross Profit - SG&A - R&D. EBITDA is a popular measure of a company's financial performance.
Depreciation & Amortization (D&A)	The allocation of cost over a fixed asset's useful life in order to match the timing of the cost of the asset with when it is expected to generate revenue benefits.
Other Operating Expenses / Income	Any operating expenses not allocated to COGS, SG&A, R&D, D&A
Operating profit (EBIT)	Earnings before interest & taxes: EBITDA - D&A

Major income statement line items (cont'd)

Major Typical Components & definitions

Interest Expense	Interest expense is the amount the company has to pay on debt owed. This could be to bondholders or to banks. Interest expense subtracted from EBIT equals earnings before taxes (EBT).
Interest Income	A company's income from its cash holdings and investments (stocks, bonds, and savings accounts).
Non-operating items	Items peripheral to core operations. Includes gains/losses on investments and revaluation of certain financial assets and debt obligations.
Income Tax Expense	The tax liability a company reports on the income statement.
Net Income	EBIT - Net Interest Expense - Other Nonoperating Income - Taxes
Basic earnings per share (EPS)	Net income / Basic Weighted Average Shares Outstanding
Diluted EPS	Net income / Diluted Weighted Average Shares Outstanding

Revenue

- Revenue represents proceeds from the sale of goods and services produced or offered by a company.

Not all income is revenue

A company may have other income streams, which are not related to its main operations:

- Interest income earned from investments (recorded as non-operating income on the income statement)
- Income received from a legal settlement (if material, identified as a separate line item on the income statement below revenue) or netted against operating expenses

- You will see revenues represented on the income statement as Revenues, Sales, Turnover, Net Sales or Net Revenues. We'll explain what is being "netted" out of net revenues shortly.
- Revenues are referred to colloquially as a company's top-line.

Examples of revenues include

- Sale of crude oil by ExxonMobil
- Sale of books by Amazon.com
- Sale of hamburgers by McDonald's

Revenue

Exercise: CVS

In July 2014, CVS, a drugstore chain, recorded the following transactions:

- Collected \$450m in cash
- Sold \$500m in merchandise
- Sold \$100m in prescriptions
- Won a legal settlement of \$400m
- Collected \$20m in interest income from a bank account

Record total revenue for CVS in July 2014

Revenue

Exercise: CVS

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- Sold \$500m in merchandise
- Sold \$100m in prescriptions
- Won a legal settlement of \$400m
- Collected \$20m in interest income from a bank account

Total revenue = \$600m (merchandise and prescriptions)

- Legal settlement and interest income are NOT part of revenues
- Under accrual accounting, receiving cash in and of itself does not constitute revenue.

Revenue recognition: To recognize and when?

- Recall that accrual basis of accounting dictates that revenue must be recorded only when it is earned and measurable.
- Recall the Amazon.com exercise: Amazon.com received a \$20 book order on 12/29/14, but it could only record it as revenue once it was shipped on 1/4/15.
- According to the revenue recognition principle, a company cannot record revenue until it is earned – that is, until that order is shipped to a customer and collection from that customer, who used a credit card, is reasonably assured.
- Deciding when to recognize revenue can be less straight-forward for some companies than for Amazon.com.
 - How should companies like Boeing, who are engaged in long-term projects recognize revenue?
 - What about companies like Apple that bundle hardware with software?

Revenue recognition: Multiple deliverables

- For sales of bundled products, companies should assign individual values to each of the bundled components
- This is especially relevant in the software industry (imagine hardware bundled with software like an iPhone)

In the real world: Apple's bundled products

- Apple sells their iPhone for \$499
- Apple estimates the standalone selling price for the unspecified software upgrade rights implicit when a customer buys an iPhone to be \$25
- Apple immediately recognizes the remainder of the sales price (\$499-\$25)
- Apple recognizes the remaining \$25 in revenue evenly over several years

Revenue recognition: Long-term projects

- For long-term projects, companies have some flexibility with respect to revenue recognition:
 1. Percentage of Completion method
 - Revenues are recognized on the basis of the percentage of total work completed during the accounting period.
 2. Completed Contract method
 - Rarely used in the U.S., this method allows revenue recognition only once the entire project has been completed.

Revenue recognition: Long-term projects

Exercise: Boeing

On January 12, 2015, Boeing agreed to deliver 6 Boeing airplanes to Bavaria Aircraft Leasing for \$330 million. Delivery of the airplanes begins in July 2015 and extends through 2017. Boeing is paid upon delivery of each plane.

Assuming Boeing uses the percentage of completion method, when should Boeing recognize \$330 million of revenues?

- On January 12, 2015 – upon agreement
- Throughout the 2015-2017 period as Boeing delivers planes to the customer
- At the end of 2017 – when all of the planes have been delivered
- On July 2015 – Once the delivery begins

Revenue recognition: Long-term projects

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The matching principle

- When should Amazon record costs associated with procuring the book it sold?
- When should Boeing record costs associated with producing those six airplanes?

The Matching Principle

- The Matching Principle states that expenses should be “matched” to revenues. In other words, the costs of manufacturing a product are matched to the revenue generated from that product during the same period.
- In our Amazon example, costs associated with the procurement of the book must be recorded in the same period as the revenue from its sale.
- In our Boeing example, costs associated with the production of airplanes must be recorded in the same period as the revenue from their sale.

Putting it all together – accrual accounting

- Revenues are recognized and recorded when an economic exchange occurs, while expenses are recognized when the associated revenues are recognized, not necessarily when cash is exchanged.

What would happen if we just recognized expenses when they are incurred like revenue?

- In the Boeing example, Boeing presumably had to purchase raw materials (metal, plane parts, etc.) some time ago, before any revenues from its contract with Bavaria Leasing were recognized.
- If it recognized them then instead of matching revenues with expenses, Boeing would have reported the material costs back when they were acquired on their financial statements. The financials would show a company with high costs and no revenues.
- This, of course, would not be an accurate depiction of the company's profitability because we know that Boeing bought those raw materials for the purpose of fulfilling an order which will generate future revenues.
- **By matching costs with revenues, the accrual concept strives to more accurately depict a company's operating results.**

Accrual versus cash accounting

- Although the benefits of the accrual method should by now be apparent, it does by definition have the limitation that analysts cannot track objectively the movement of cash.
 - Public companies are required to use accrual accounting in accordance with GAAP.
 - The cash flow statement, one of the three principal financial statements, allows analysts to reconcile these differences.
- **Cash accounting** is not allowed under GAAP, but for tax reporting certain businesses are allowed to use cash basis.
 - Cash accounting objectively recognizes revenues when cash is received and records costs when cash is paid out; accrual accounting involves subjectivity in regards to the allocation of revenues and expenses to different periods.
 - In the US, for example, the IRS allows cash accounting for businesses with under \$1m in revenue or up to \$10m under certain circumstances.

Accrual versus cash accounting

Accrual vs. Cash

	Cash Accounting	Accrual Accounting
Purpose	Track movement of cash	Allocate revenues and expenses to create a more accurate depiction of operations
Revenue Recognition	Cash is received	Economic exchange is almost or fully complete
Expense Recognition	Cash is paid out – could be in a different period from revenue recognition	Expenses associated with a product must be recorded during the same period as revenue generated from it (Matching Principle)
Judgment	Movement of cash is <i>objective</i>	Allocation of revenues and expenses to different periods is <i>subjective</i>
Key Takeaway	Under accrual accounting, some revenues and expenses are reported in periods that are different from those in which cash was actually received or spent!	

Revenue manipulation

- Because of accrual accounting, revenue recognition can be subjective.
- This “wiggle room” creates potential for manipulation in the form of shifting revenues from one period to another.
- While revenue recognition methods are almost always explained in companies’ 10K footnotes, and when there is suspicion of “shenanigans,” these should be read carefully.

In the real world - TSAI

- TSAI represents a classic example of a company taking advantage of the ability to change revenue recognition approaches to mask falling revenues
- Software maker TSAI sold 5-year license agreements for its software.
- Up until 1998, the company employed conservative revenue recognition practices - only recording revenues from agreements when the customers were billed through the course of the 5-year agreement.
- The company began experiencing slowing sales in 1998. To hide the problem, it changed its revenue recognition practices to record nearly 5 years’ worth of revenues upfront, thereby artificially boosting sales.
- 1998 didn’t look that bad anymore, but in 1999 when investors compared results to 1998, the chickens came home to roost - and saw a 20% decline in revenues.

Cost of goods sold / Cost of sales

- Cost of Goods Sold (COGS) or Cost of Sales (COS), represents a company's direct cost of manufacture (for manufacturers) or procurement (for merchandisers) of a good or service that the company sells to generate revenue.

COGS do not include administrative costs

- Costs such as corporate overhead, marketing and administrative expenses, research and development, and salaries of employees not associated directly with the manufacture or procurement of a good or service are not included in COGS
- Those costs are included under Selling, General & Administrative Expenses or other line items (discussed in the next section).

Examples of COGS

- Merchandise inventory
- Manufactured goods inventory
 - *Raw material costs*
 - *Direct labor costs*
 - *Factory overhead*
- Shipping and delivery costs
- Any other costs directly associated with the generation of revenue
- Depreciation of fixed assets

Remember the matching principle!

- Many of these costs are not going to be immediately recognized
- For example, merchandise inventories are only recognized when revenue from their sale is recognized

Cost of goods sold / Cost of sales

Below are examples of expenses that, once sold, would be classified as cost of goods sold:

For a manufacturer	Examples
Inventory	The cost of tires that Michelin sells
Direct labor	The laborers working on an Exxon Mobil oil well
Factory overhead (indirect costs)	Rents, heat, administrative salaries, equipment maintenance costs, custodial costs in a GM automotive plant
Shipping & delivery costs	Lumber delivery costs for Sierra Pacific

For a merchandiser	Examples
Inventory	The cost of TV sets for Walmart
Shipping & delivery costs	Shipping & delivery costs of Apple's inventory (Apple is both a manufacturer and merchandiser)

For a service provider	Examples
Direct service costs	<ul style="list-style-type: none"> Google's payments to its advertising network (traffic acquisition costs) Compensation of Huron consultants that directly generate consulting fees

Cost of goods sold / Cost of sales

- Below is Walmart's description of what is included in their cost of sales from their 10K:

		WAL-MART STORES, INC. Consolidated Statements of Income		
		Fiscal Years Ended January 31,		
		2012	2011	2010
<i>(Amounts in millions except per share data)</i>				
Revenues:				
Net sales		\$ 443,854	\$ 418,952	\$ 405,132
Membership and other income		3,096	2,897	2,953
		446,950	421,849	408,085
Costs and expenses:				
Cost of sales		335,127	314,946	304,106
Operating, selling, general and administrative expenses		85,265	81,361	79,977
Operating income		26,558	25,542	24,002

Cost of Sales

Cost of sales includes actual product cost, the cost of transportation to the Company's warehouses, stores and clubs from suppliers, the cost of transportation from the Company's warehouses to the stores, clubs and customers and the cost of warehousing for its Sam's Club segment and import distribution centers.

Cost of goods sold / Cost of sales

- Below is Google's description of what is included in their cost of revenues from their 10K:

Google Inc.
CONSOLIDATED STATEMENTS OF INCOME
(In millions, except per share amounts)



	Year Ended December 31,		
	2011	2012	2013
Revenues:			
Google (advertising and other)	\$ 37,905	\$ 46,039	\$ 55,519
Motorola Mobile (hardware and other)	0	4,136	4,306
Total revenues	\$ 37,905	\$ 50,175	\$ 59,825
Costs and expenses:			
Cost of revenues - Google (advertising and other) ⁽¹⁾	13,188	17,176	21,993
Cost of revenues - Motorola Mobile (hardware and other) ⁽¹⁾	0	3,458	3,865
Research and development ⁽¹⁾	5,162	6,793	7,952
Sales and marketing ⁽¹⁾	4,589	6,143	7,253
General and administrative ⁽¹⁾	2,724	3,845	4,796
Charge related to the resolution of Department of Justice investigation	500	0	0
Total costs and expenses	26,163	37,415	45,859
Income from operations	11,742	12,760	13,966

Cost of Revenues

Cost of revenues consists primarily of traffic acquisition costs. Traffic acquisition costs consist of amounts paid to our Google Network Members under AdSense arrangements and to certain other partners (our distribution partners) who distribute our toolbar and other products (collectively referred to as access points) or otherwise direct search queries to our website (collectively referred to as distribution arrangements). These amounts are primarily based on the revenue share and fixed fee arrangements with our Google Network Members and distribution partners.

Cost of goods sold / Cost of sales

- Below is Huron's description of what is included in their cost of revenues from their 10K:



HURON CONSULTING GROUP INC.
 CONSOLIDATED STATEMENTS OF EARNINGS AND OTHER COMPREHENSIVE INCOME
 (In thousands, except per share amounts)

	Year Ended December 31,		
	2013	2012	2011
Revenues and reimbursable expenses:			
Revenues	\$ 720,522	\$ 625,961	\$ 606,314
Reimbursable expenses	67,267	55,764	51,580
Total revenues and reimbursable expenses	787,789	681,725	657,894
Direct costs and reimbursable expenses (exclusive of depreciation and amortization shown in operating expenses):			
Direct costs	443,539	384,884	376,084
Amortization of intangible assets and software development costs	3,091	3,809	5,364
Reimbursable expenses	67,320	55,772	51,673
Total direct costs and reimbursable expenses	513,950	444,465	433,121
Operating expenses and other operating gains:			
Selling, general and administrative expenses	138,538	125,266	119,325
Restructuring charges	761	4,004	3,829
Restatement related expenses	—	1,785	4,579
Litigation and other settlement (gains) losses	(5,875)	1,150	1,096
Depreciation and amortization	20,510	18,529	18,524
Goodwill impairment charge	—	13,083	21,973
Total operating expenses and other operating gains	153,934	163,817	169,326

Direct Costs and Reimbursable Expenses

Direct costs and reimbursable expenses consist primarily of revenue-generating employee compensation and their related benefit and share-based compensation costs, the cost of outside consultants or subcontractors assigned to revenue-generating activities, other third-party costs directly attributable to our revenue-generating activities, and direct expenses to be reimbursed by clients. Direct costs and reimbursable expenses incurred on engagements are expensed in the period incurred.

Cost of goods sold / Cost of sales

Exercise: COGS

Which of the following examples constitute costs that would be eventually recognized as COGS?

- Cost of steel for auto manufacturer
- Cost of a cashier at an Apple store
- Cost of management offices at a tire firm
- Cost of computers acquired by merchant for resale to the public
- Cost of research and development at a pharmaceutical company
- Cost of a factory supervisor at a tire plant

Cost of goods sold / Cost of sales

Exercise: COGS

Which of the following examples constitute costs that would be eventually recognized as COGS?

Cost of steel for auto manufacturer

Cost of a cashier at an Apple store

This qualifies as a selling cost – cashiers are part of selling, general & administrative expenses, which we'll get to shortly.

Cost of management offices at a tire firm

Since it is not directly tied with the manufacture of tires, it is not COGS.

Cost of computers acquired by merchant for resale to the public

Cost of research and development at a pharmaceutical company

Cost of a factory supervisor at a tire plant

Although it is not direct labor, it is factory overhead, which is captured in COGS.

Gross profit

- Gross profit represents profit after only direct expenses (COGS) have been accounted for:

$$\text{Gross Profit} = \text{Net Revenues} - \text{COGS}$$

Calculate gross profit

- Tire producer recorded \$100m in net revenues in 2015 to 8,000 customers
- In 2015, the tire producer purchased \$60m in rubber raw materials
- In 2015, the tire producer spent \$7m on factory overhead
- In 2015, the tire producer spent \$5m on direct labor
- \$40m in tire inventories were used up in the sales that generated \$100m in tire revenue, which were comprised of \$30m in raw material costs, \$5m in factory overhead, and \$5m in direct labor.
- The tire producer spent \$2m shipping the tires to the 8,000 customers
- In 2015, the tire producer spent \$4m for office supplies
- In 2015, the tire producer spent \$2m on R&D for a new rubber technology

Gross profit

Calculate gross profit

\$100m	Tire producer recorded \$100m in net revenues
Less: \$40m	\$40m in inventories used up
Less: \$2m	\$2m in shipping
Equals: \$58m	

Remember the matching principle!

- It doesn't matter how many new inventories were purchased – what matters are the inventories used up in generating the revenue

Selling, general & administrative expenses

- Operating expenses that are not included in cost of goods sold, are allocated to categories titled ‘Selling, general, & administrative expenses’ (SG&A) but may also include terms like marketing and operating expenses in the title.
- SG&A represents the operating expenses not directly associated with the production or procurement of the product or service that the company sells to generate revenue

Examples of SG&A

A store lease expense for a retail business

Salaries and commissions of sales people and cashiers

Marketing and advertising expenses

Administrative, IT, and office support staff

Equipment used for selling (a cash register)

Executive salaries

Legal expenses

Selling, general & administrative expenses

- Below is Google's description of what is included in their SG&A from their 10K:

Google Inc.
CONSOLIDATED STATEMENTS OF INCOME
(In millions, except per share amounts)



	Year Ended December 31,		
	2011	2012	2013
Revenues:			
Google (advertising and other)	\$ 37,905	\$ 46,039	\$ 55,519
Motorola Mobile (hardware and other)	0	4,136	4,306
Total revenues	\$ 37,905	\$ 50,175	\$ 59,825
Costs and expenses:			
Cost of revenues - Google (advertising and other) ⁽¹⁾	13,188	17,176	21,993
Cost of revenues - Motorola Mobile (hardware and other) ⁽¹⁾	0	3,458	3,865
Research and development ⁽¹⁾	5,162	6,793	7,952
Sales and marketing ⁽¹⁾	4,589	6,143	7,253
General and administrative ⁽¹⁾	2,724	3,845	4,796
Charge related to the resolution of Department of Justice investigation	500	0	0
Total costs and expenses	26,163	37,415	45,859
Income from operations	11,742	12,760	13,966

Sales and marketing expenses consist primarily of compensation and related costs for personnel engaged in customer service, sales, and sales support functions, as well as advertising and promotional expenditures.

General and administrative expenses consist primarily of compensation and related costs for personnel and facilities, and include costs related to our facilities, finance, human resources, information technology and legal organizations, as well as fees for professional services. Professional services are principally comprised of outside legal, audit, information technology consulting, and outsourcing services. General and administrative expenses also include amortization of certain acquisition-related intangible assets.

Operating, selling, general & administrative

- Below is Apple's description of what is included in their SG&A from their 10K:



CONSOLIDATED STATEMENTS OF OPERATIONS
 (In millions, except number of shares which are reflected in thousands and per share amounts)

	September 28, 2013	September 29, 2012	September 24, 2011
Net sales	\$ 170,910	\$ 156,508	\$ 108,249
Cost of sales	106,606	87,846	64,431
Gross margin	64,304	68,662	43,818
Operating expenses:			
Research and development	4,475	3,381	2,429
Selling, general and administrative	10,830	10,040	7,599
Total operating expenses	15,305	13,421	10,028

Selling, General and Administrative ("SG&A") Expense

The growth in SG&A during 2013 was primarily due to the Company's continued expansion of its Retail segment and increased headcount and related expenses, partially offset by decreased spending on professional

services. The growth in SG&A during 2012 was primarily due to the Company's continued expansion of its Retail segment, increased headcount and related expenses, higher spending on professional services, marketing and advertising programs, and increased variable costs associated with the overall growth of the Company's net sales.

Advertising Costs

Advertising costs are expensed as incurred and included in selling, general and administrative expenses. Advertising expense was \$1.1 billion, \$1.0 billion and \$933 million for 2013, 2012 and 2011, respectively.

Selling, general & administrative expenses

Exercise: SG&A

Which of the following constitute SG&A?

- Salaries of an administrative assistant at a tech company
- Office supplies at a steel company's corporate HQ
- Cost of office space used by staff at a consulting company
- Cost of maintenance of a factory machine
- Cost of an executive's business trip to Asia

Selling, general & administrative expenses

Exercise: SG&A

Which of the following constitute SG&A?

- Salaries of an administrative assistant at a tech company
- Office supplies at a steel company's corporate HQ
- Cost of office space used by staff at a consulting company

- Cost of maintenance of a factory machine

Factory overhead is captured in COGS

- Cost of an executive's business trip to Asia

Research & development (R&D)

- Research and development (R&D) expenses stem from a company's activities that are directed at developing new products or procedures.
- Research-intensive industries such as healthcare, energy and technology often identify R&D expenses separately because they constitute such a large component of total expenses.
- For example, Microsoft, Exxon Mobil, Google, Apple, EMC, and Pfizer all identify R&D expenses separately.
- Other companies aggregate the R&D expense within Other Operating Expenses or SG&A.
- R&D expenses include compensation for employees, equipment, and facilities engaged in the R&D process.



Research & development (R&D)

- Below is Google's description of what is included in their R&D from their 10K:

Google Inc.
CONSOLIDATED STATEMENTS OF INCOME
(In millions, except per share amounts)



	Year Ended December 31,		
	2011	2012	2013
Revenues:			
Google (advertising and other)	\$ 37,905	\$ 46,039	\$ 55,519
Motorola Mobile (hardware and other)	0	4,136	4,306
Total revenues	\$ 37,905	\$ 50,175	\$ 59,825
Costs and expenses:			
Cost of revenues - Google (advertising and other) ⁽¹⁾	13,188	17,176	21,993
Cost of revenues - Motorola Mobile (hardware and other) ⁽¹⁾	0	3,458	3,865
Research and development ⁽¹⁾	5,162	6,793	7,952
Sales and marketing ⁽¹⁾	4,589	6,143	7,253
General and administrative ⁽¹⁾	2,724	3,845	4,796
Charge related to the resolution of Department of Justice investigation	500	0	0
Total costs and expenses	26,163	37,415	45,859
Income from operations	11,742	12,760	13,966

Research and development expenses consist primarily of compensation and related costs for personnel responsible for the research and development activities relating to new and existing products and services, as well as depreciation and equipment-related costs. We expense research and development costs as incurred.

Depreciation expense

- Up to now, we have been talking about classifying expenses based on their function - whether they are direct costs (COGS) or non-direct operating costs (SG&A, R&D, etc.)
- Another important question is if a purchase is expected to help generate revenue for several years, should the entire cost of the purchase be expensed at once or whether that cost should be spread out evenly over the useful life of the asset.
- Accrual accounting (and specifically the matching principle) dictates that we spread the cost evenly over the life of the asset so that costs are matched to the period when revenue is earned as a result of using the asset.
- The resulting annual expense is called depreciation.

Example: GE buys a sensor

- GE invests \$30 million (in an upfront cash payment) in a new flow meter sensor, which it expects will significantly improve productivity.
- The equipment is expected to have a useful life of 10 years, at which point it will be disposed of (assume no salvage value).
- Accordingly, on the income statement, GE will recognize an annual depreciation expense of \$3 million for this sensor, every year for the next 10 years.

Depreciation expense

- Depreciation quantifies the wear and tear (from use and passage of time) of the physical asset through a systematic decrease (depreciation) of the assets' book (historical) value.

Exercise: Depreciation

Which of the following costs should be depreciated?

- Building cost of a warehouse
- Management compensation
- Office furniture
- Land used to build a supermarket
- Printing costs for marketing brochures to be distributed at conference

Useful life of fixed assets

Assets that have physical substance, along with typical depreciable period:

- Plants and buildings (15- 40 years)
- Machinery & equipment (3-20 years)
- Furniture & fixtures (5-10 years)
- Computer software & hardware (3-5 years)

Land

Land is a fixed asset but is NOT depreciated

Depreciation expense

Exercise: Depreciation

Which of the following costs should be depreciated?

- Building cost of a warehouse
- Management compensation
- Office furniture
- Land used to build a supermarket
- Printing costs for marketing brochures to be distributed at conference

Where is depreciation expense on the Income Statement?

- You will not see a line item on the I/S specifically identifying depreciation expense.
- Depreciation is included within COGS or SG&A**, depending on whether the asset being depreciated is directly tied with manufacture or procurement (i.e. cost of building a tire plant) or tied to something not directly tied like selling or marketing (i.e. cost of a point-of-sale cash register system).
- However, you will almost always find depreciation expense identified separately on **the cash flow statement** (which we'll address in detail later)



WAL-MART STORES, INC.
Consolidated Statements of Income

(Amounts in millions except per share data)

Revenues:

	Fiscal Years Ended January 31,		
	2012	2011	2010
Net sales	\$ 443,854	\$ 418,952	\$ 405,132
Membership and other income	3,096	2,897	2,953
	446,950	421,849	408,085

Costs and expenses:

Cost of sales	335,127	314,946	304,106
Operating, selling, general and administrative expenses	85,265	81,361	79,977
Operating income	26,558	25,542	24,002
Depreciation and amortization	8,130	7,641	7,157



Depreciation expense is a non-cash expense

- Depreciation is a non-cash expense and can make up a significant portion of total expenses on a company's income statement.
- That makes the income statement a poor tool for tracking a company's cash position:
 - *Income statement profits* are reduced every year by depreciation expense, whereas actual *Cash profits* are affected only when cash payments for purchases of assets are made

Example: GE buys a sensor (cont'd)

- Note that in our example, the fact that GE paid cash upfront doesn't matter for the income statement presentation – under accrual accounting, a \$3 million expense will be recognized every year for 10 years.
- Is the fact that GE incurred a \$30 million cash hit in the first year but only shows a \$3 million expense potentially misleading?
- What about the fact that the next year, GE did not have any cash outflows associated with the sensor but still showed a \$3 million expense?

Straight-line depreciation method

- Under US GAAP and IFRS, most companies choose to depreciate assets evenly over their useful lives, and this approach is called the '**straight-line method**'
- Under the straight-line depreciation method, the depreciable cost of an asset is spread evenly over the asset's estimated useful life.
- Accordingly, depreciation expense for each period (quarter or year) is the same, and can be calculated as follows:
- Annual depreciation expense =
$$\frac{\text{Original cost} - \text{Salvage value}}{\text{Useful life}}$$
 - *Original Cost* = original cost of the asset.
 - Salvage (residual) value = the asset's estimated salvage (or disposal / residual / trade-in value) at the time of disposal.
 - Original cost minus salvage value is often referred to as the *depreciable cost*.
 - *Useful Life* = total years the asset is expected to remain in service.

Straight-line depreciation method

Exercise: Straight-line depreciation

A tire maker spends \$100,000 in 2014 to acquire manufacturing equipment that is expected to be productive for the next five years, at which point the estimated salvage value is \$20,000.

Calculate the annual depreciation expense using the straight-line depreciation method.

Straight-line depreciation method

Exercise: Straight-line depreciation

A tire maker spends \$100,000 in 2014 to acquire manufacturing equipment that is expected to be productive for the next five years, at which point the estimated salvage value is \$20,000.

Calculate the annual depreciation expense using the straight-line depreciation method:

$$16,000 = \frac{100,000 - 20,000}{5}$$

Year	Depreciation expense	Accumulated depreciation <i>end of year</i>	Book value <i>end of year</i>
			100,000 (at purchase)
2014	16,000	16,000	84,000
2015	16,000	32,000	68,000
2016	16,000	48,000	52,000
2017	16,000	64,000	36,000
2018	16,000	80,000	20,000

Accelerated depreciation method

- While most companies choose straight-line depreciation, under both US GAAP and IFRS, companies are allowed to use accelerated depreciation methods, which calculate a greater amount of depreciation in earlier years than later years. The most common accelerated depreciation methods are:
 - Declining balance
 - Sum of years digits
 - Units of production

Amortization expense

- Amortization is the allocation of the cost of intangible assets over the number of years that these assets are expected to help generate revenue for the company.
- Conceptually similar to depreciation and often lumped in with depreciation as Depreciation & Amortization (D&A) in financial disclosures.
- Like with fixed assets, when a company purchases an intangible asset from which it expects to generate benefits over future periods, the cost of that asset is not simply recognized during the year it was acquired.
- Instead, it is spread over that particular asset's useful life in the form of amortization expense.

Types of intangible assets

- Customer Lists
- Franchise, Memberships, Licenses
- Patents and Technology
- Trademarks and goodwill are considered to have indefinite useful life so they are not amortized (more on this later)

Example: Google buys a patent

- Google invests \$30m to acquire several patents from a mobile technology firm.
- The patents are expected to have a useful life of 10 years
- Accordingly, on the income statement, Google will recognize an annual amortization expense of \$3 million, every year for the next 10 years.

Amortization expense

- Here is Google's 10K footnote disclosure regarding the company's intangible assets, along with their useful life estimates and resulting future amortization.



Note 7. Goodwill and Other Intangible Assets

	As of December 31, 2013		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Value
Patents and developed technology	\$ 7,282	\$ 2,102	\$ 5,180
Customer relationships	1,770	1,067	703
Trade names and other	534	351	183
Total	<u>\$ 9,586</u>	<u>\$ 3,520</u>	<u>\$ 6,066</u>

Patents and developed technology, customer relationships, and trade names and other have weighted-average useful lives from the date of purchase of 8.1 years, 6.5 years, and 5.3 years. Amortization expense of acquisition-related intangible assets for the years ended December 31, 2011, 2012, and 2013 was \$441 million, \$884 million, and \$1,158 million.

As of December 31, 2013, expected amortization expense for acquisition-related intangible assets for each of the next five years and thereafter was as follows (in millions):

2014	\$ 1,093
2015	934
2016	844
2017	781
2018	734
Thereafter	<u>1,680</u>
	<u>\$ 6,066</u>

Amortization is a non-cash expense like depreciation

- Amortization expense does not depict any actual cash outflow (payment)
- The only difference between depreciation and amortization is that depreciation refers to fixed (physical) assets, while amortization refers to acquired intangible (not physical) assets

Internally-generated intangible assets

- Expenses associated with internally developing intangible assets like patents, customer lists, trademarks are expensed fully as they are incurred (no amortization)
- Since companies are not allowed to write up the value of intangible assets (historical cost and conservatism), companies with very valuable trademarks and patents (Coke, GE, Apple) do not recognize or amortize these assets.

Amortization is a non-cash expense like depreciation

Exercise: Putting It All Together

For each item below, identify in column 2 whether it should be: 1) Amortization expense, 2) Depreciation expense, 3) Fully expensed or 4) None of the above. In addition, identify in Column 3 whether the expense belongs in 1) COGS or 2) Other operating expenses

Column 1	Column 2	Column 3
Cost of building an automotive factory	?	?
Cost of building an office to house marketing, administrative, and management staff for an automotive firm	?	?
Cost of salaries for assembly labor at automotive firm	?	?
Cost of acquiring customer list by automotive firm	?	?
Cost of patent filing fees for a new windshield wiper technology internally developed	?	?
Cost of acquiring a trademark	?	?

Amortization is a non-cash expense like depreciation

Exercise: Putting It All Together

For each item below, identify in column 2 whether it should be: 1) Amortization expense, 2) Depreciation expense, 3) Fully expensed or 4) None of the above. In addition, identify in Column 3 whether the expense belongs in 1) COGS or 2) Other operating expenses

Column 1	Column 2	Column 3
Cost of building an automotive factory	Depreciation expense	COGS
Cost of building an office to house marketing, administrative, and management staff for an automotive firm	Depreciation expense	Other operating expenses
Cost of salaries for assembly labor at automotive firm	Fully expensed	COGS
Cost of acquiring customer list by automotive firm	Amortization expense	Other operating expenses
Cost of patent filing fees for a new windshield wiper technology internally developed	Fully expensed	Other operating expenses
Cost of acquiring a trademark	None of the above Trademarks usually have an indefinite life useful life	N/A

Amortization is a non-cash expense like depreciation

Exercise: Putting It All Together

For each item below, identify whether it should be amortization expense, depreciation expense, or fully expensed, as well as whether the expense belongs in COGS or SG&A

Cost of building an automotive factory

Cost of building an office to house marketing, administrative, and management staff for an automotive firm

Cost of salaries for assembly labor at automotive firm

Cost of acquiring customer list by automotive firm

Cost of patent filing fees for a new windshield wiper technology internally developed

Cost of acquiring a trademark

Amortization is a non-cash expense like depreciation

Exercise: Putting It All Together

For each item below, identify whether it should be amortization expense, depreciation expense, fully expensed, or none of the above, as well as whether the expense belongs in 1) COGS or 2) Other operating expenses

Cost of building an automotive factory	Depreciation expense	COGS
Cost of building an office to house marketing, administrative, and management staff for an automotive firm	Depreciation expense	Other operating expenses
Cost of salaries for assembly labor at automotive firm	Fully expensed	COGS
Cost of acquiring customer list by automotive firm	Amortization expense	Other operating expenses
Cost of patent filing fees for a new windshield wiper technology internally developed	Fully expensed	Other operating expenses
Cost of acquiring a trademark	None of the above <i>Trademarks usually have an indefinite life useful life</i>	N/A

Stock based compensation expense

- We've already discussed how the expense of employee salaries are embedded within the expense categories based on the employee's job function.
 - A corporate manager or sales person's salary will likely be embedded **in SG&A**
 - The salary of a software engineer will likely be embedded **in R&D**
 - The salary of a factory supervisor at a tire manufacturer will likely be embedded **in COGS**
- But what happens when a company compensates an employee with stock (like stock options or restricted stock)? *hint: accrual accounting*

Stock based compensation expense

- When a company compensates an employee with stock (like stock options or restricted stock), the value of that compensation (called “stock based compensation” or “SBC”) is recognized as an expense in the same expense category as the employee’s regular cash compensation¹.
- For example, a company that pays a sales person a cash salary of \$100,000 and stock options valued at \$50,000 will recognize:
 - \$150,000 in SG&A compensation (even though only \$100,000 was spent).
 - The extra \$50,000 reflects that the employee *earned* an additional \$50,000 in compensation (the actual payment down the road in the form of additional shares may not happen for a while).
 - Even though its recognized as an expense as an employee earns the SBC, remember that SBC is a **non-cash** form of compensation

¹ Unlike the expense we have talked about so far, valuing SBC is challenging because the real value will not be known for a while, and depends on several factors, including the future share price of the company, the likelihood that the employee stays with the company long enough to have the SBC “vest, among other factors. You do not need to understand how to value SBC for this course, just that it is valued, and recognized as a non-cash expense within the same operating expense category that the cash comp is classified.

Where is SBC expense on the Income Statement?

- Just like depreciation, you won't see a line item on the I/S specifically identifying SBC expense.
- SBC is included within the operating expenses** in which the employee is classified
- However, like depreciation, you will almost always find SBC expense identified separately on **the cash flow statement** (which we'll address in detail later)

	Alphabet Inc. CONSOLIDATED STATEMENTS OF INCOME (in millions, except per share amounts; unaudited)			
	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2018	2017	2018
Revenues	\$ 27,772	\$ 33,740	\$ 78,532	\$ 97,543
Costs and expenses:				
Cost of revenues	11,148	14,281	31,316	41,631
Research and development	4,205	5,232	12,319	15,385
Sales and marketing	3,042	3,849	8,583	11,233
General and administrative	1,595	2,068	5,096	6,105
European Commission fines	0	0	2,736	5,071
Total costs and expenses	19,990	25,430	60,050	79,425
Income from operations	7,782	8,310	18,482	18,118
Other income (expense), net	197	1,773	693	6,723
Income before income taxes	7,979	10,083	19,175	24,841
Provision for income taxes	1,247	891	3,493	3,053
Net income	\$ 6,732	\$ 9,192	\$ 15,682	\$ 21,788
Stock-based compensation expense			5,832	7,100

Other operating expenses / income

- Companies will sometimes recognize expenses (or income) on the income statement that, while still related to operating activities, are a little less typical. Common examples include:
 - Gains/losses on sale of fixed assets
 - Gains/losses from a legal settlement
 - Restructuring expenses and severance costs
 - Losses due to inventory spoilage (inventory write-down)

Where are these items classified on the income statement?

- Unless these items are material, they will often be embedded within larger operating expense categories like SG&A, or in a separate line item called “Other operating expenses”
- Companies sometimes provide a separate disclosure in their press releases where they have more freedom to detail these items (called a “non-GAAP” reconciliation)
- When the expense (or income) is large, it may be identified as its own separate line item

Crash Course in Accounting & Financial Statement Analysis > Income Statement

	LogMeln, Inc.			
	Condensed Consolidated Statements of Operations (unaudited)			
	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2018	2017	2018
Revenue	\$ 269,267	\$ 308,927	\$ 713,750	\$ 893,794
Cost of revenue	55,605	72,853	147,780	208,628
Gross profit	213,662	236,074	565,970	685,166
Operating expenses:				
Research and development	42,603	42,220	116,435	129,256
Sales and marketing	89,379	95,041	258,616	282,599
General and administrative	37,906	37,441	120,460	111,990
Gain on disposition of assets	-	-	-	(33,910)
Amortization of acquired intangibles	36,613	44,268	97,187	128,698
Total operating expenses	206,501	218,970	592,698	618,633
Income (loss) from operations	7,161	17,104	(26,728)	66,533
Interest income	405	293	924	1,335
Interest expense	(294)	(2,033)	(1,088)	(4,213)
Other income (expense), net	51	(77)	(27)	(403)
Income (loss) before income taxes	7,323	15,287	(26,919)	63,252
(Provision for) benefit from income taxes	2,597	(2,570)	33,121	(14,269)
Net income (loss)	\$ 9,920	\$ 12,717	\$ 6,202	\$ 48,983

A gain on the sale of a fixed asset was so significant it got its own line item

	Alphabet Inc.			
	CONSOLIDATED STATEMENTS OF INCOME			
	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2018	2017	2018
Revenues	\$ 27,772	\$ 33,740	\$ 78,532	\$ 97,543
Costs and expenses:				
Cost of revenues	11,148	14,281	31,316	41,631
Research and development	4,205	5,232	12,319	15,385
Sales and marketing	3,042	3,849	8,583	11,233
General and administrative	1,595	2,068	5,096	6,105
European Commission fines	0	0	2,736	5,071
Total costs and expenses	19,990	25,430	60,050	79,425
Income from operations	7,782	8,310	18,482	18,118
Other income (expense), net	197	1,773	693	6,723
Income before income taxes	7,979	10,083	19,175	24,841
Provision for income taxes	1,247	891	3,493	3,053
Net income	\$ 6,732	\$ 9,192	\$ 15,682	\$ 21,788

...As was a fine levied on Google by the European Commission was so significant it got its own line item

	FITBIT, INC.			
	Condensed Consolidated Statements of Operations			
	(In thousands, except per share amounts)			
	(unaudited)			
	Three Months Ended		Six Months Ended	
	June 30, 2018	July 1, 2017	June 30, 2018	July 1, 2017
Revenue	\$ 299,344	\$ 353,299	\$ 547,209	\$ 652,241
Cost of revenue	180,329	204,054	314,071	384,697
Gross profit	119,015	149,245	233,138	267,544
Operating expenses:				
Research and development	87,047	80,543	176,383	168,301
Sales and marketing	100,845	100,732	172,897	191,906
General and administrative	30,211	31,379	66,299	62,125
Total operating expenses	218,103	212,654	415,579	422,332
Operating loss	(99,088)	(63,409)	(182,441)	(154,788)
Interest income, net	2,177	193	3,527	1,289
Other income, net	2,258	303	2,775	836
Loss before income taxes	(94,653)	(62,913)	(176,139)	(152,663)
Income tax expense (benefit)	23,615	(4,673)	23,006	(34,344)
Net loss	<u>\$ (118,268)</u>	<u>\$ (58,240)</u>	<u>\$ (199,145)</u>	<u>\$ (118,319)</u>

By contrast, Fitbit had litigation and restructuring expenses that were simply embedded into R&D, S&M and G&A expenses¹.

	FITBIT, INC.			
	RECONCILIATION OF GAAP TO NON-GAAP FINANCIAL MEASURES			
	(In thousands, except percentages and per share amounts)			
	(unaudited)			
	Three Months Ended		Six Months Ended	
	June 30, 2018	July 1, 2017	June 30, 2018	July 1, 2017
Litigation expense	—	—	1,533	765
Impact of restructuring	—	—	—	1,419
			6,375	

¹Fitbit provided a disclosure in their press releases outlining these less typical expenses. Source: Fitbit Q2 2018 Press Release.
<https://investor.fitbit.com/press/press-releases/press-release-details/2018/Fitbit-Reports-Second-Quarter-2018-Results/default.aspx>

Non-operating income and expenses

- Up to now, we have been talking about income and expense generated and incurred from a company's core operations
- Companies also generate income and expenses that are not tied to the core operations of their business:



Consolidated Statements of Earnings

<u>Amounts in millions except per share amounts; Years ended June 30</u>	2013	2012	2011
NET SALES	\$ 84,167	\$ 83,680	\$ 81,104
Cost of products sold	42,428	42,391	39,859
Selling, general and administrative expense	26,950	26,421	25,750
Goodwill and indefinite-lived intangible asset impairment charges	308	1,576	—
OPERATING INCOME	14,481	13,292	15,495
Interest expense	667	769	831
Interest income	87	77	62
Other non-operating income, net	942	185	271
EARNINGS FROM CONTINUING OPERATIONS BEFORE INCOME TAXES	14,843	12,785	14,997
Income taxes on continuing operations	3,441	3,468	3,299
NET EARNINGS FROM CONTINUING OPERATIONS	11,402	9,317	11,698



Everything below operating profit is not directly related to the operations of the business

Interest expense

- Interest expense are payments the company makes for its outstanding debt.
- Just as the interest we pay on credit cards or a car loan, corporations must make regular interest payments (interest expense) on debt owed to banks or other lenders.

Net interest expense

- Sometimes, interest income and expense are netted against one another when presented on the income statement

Interest income

- A company's income from its cash holdings and investments (stocks, bonds, and savings accounts).
- Interest Expense is often presented on the income statement as Net Interest Expense.

Other non-operating income / expenses

- In addition to interest income, companies may generate income from non operating activities:
 - Increases in value and gains on sale on certain financial investments

Other non-operating expenses

- Represents expenses that are not tied to the core operations of the business or are unusual:
 - Decreases in value and losses on sale on certain investments and debt

Alphabet Inc. CONSOLIDATED STATEMENTS OF INCOME (in millions, except per share amounts; unaudited)					
	Three Months Ended September 30,		Nine Months Ended September 30,		
	2017	2018	2017	2018	
Revenues	\$ 27,772	\$ 33,740	\$ 78,532	\$ 97,543	
Costs and expenses:					
Cost of revenues	11,148	14,281	31,316	41,631	
Research and development	4,205	5,232	12,319	15,385	
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European Commission fines	0	0	2,736	5,071	
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Income before income taxes	7,979	10,083	19,175	24,841	
Provision for income taxes	1,247	891	3,493	3,053	
Net income	\$ 6,732	\$ 9,192	\$ 15,682	\$ 21,788	

Other Income (Expense), Net

The components of other income (expense), net, were as follows (in millions, unaudited):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2018	2017	2018
Interest income	\$ 306	\$ 481	\$ 912	\$ 1,336
Interest expense ⁽¹⁾	(27)	(28)	(73)	(85)
Foreign currency exchange losses, net	(53)	(55)	(101)	(112)
Loss on debt securities, net	(46)	(29)	(97)	(62)
Gain on equity securities, net	1	1,382	30	5,475
Loss and impairment from equity method investments, net	(31)	(27)	(93)	(139)
Other	47	49	115	310
Other income (expense), net	\$ 197	\$ 1,773	\$ 693	\$ 6,723

⁽¹⁾ Interest expense is net of interest capitalized of \$13 million and \$23 million for the three months ended September 30, 2017 and 2018, respectively, and \$32 million and \$62 million for the nine months ended September 30, 2017 and 2018, respectively.

Non-operating income and losses are often netted together on the income statement as simply “Other non-operating income, net, while a breakout of what’s inside may (or may not) be disclosed in footnotes.

Tax expense

- Under US GAAP and IFRS, companies report tax expense as a separate line item usually right below a line item called 'Pretax Income' or 'Income before provision for income taxes'

Tax expense doesn't equal the actual cash taxes paid!

- Although this topic can get quite esoteric and is firmly outside the scope of this course, we can broadly say that because of the ability of companies to defer certain taxes, the tax expense companies recognize on their income statement does not equal that actual cash taxes they have to pay for the same period.

Diving a little deeper

- The calculation of cash taxes are made using the relevant country's tax code accounting 'tax rules', while the tax expense on the income statement is calculated using the relevant local 'book rules' (US GAAP, IFRS, etc.)
- The different accounting rules, primarily revolving the calculation of depreciation, when revenues are recognized, and how losses are treated create many of the differences between the tax expense and the actual taxes paid.

Tax expense

Below we see Apple's footnote disclosure of what portion of the tax expense it recognizes on the income statement is actually due in the current period



CONSOLIDATED STATEMENTS OF OPERATIONS
(In millions, except number of shares which are reflected in thousands and per share amounts)

	September 28, 2013	Years ended September 29, 2012	September 24, 2011
Net sales	\$ 170,910	\$ 156,508	\$ 108,249
Cost of sales	<u>106,606</u>	<u>87,846</u>	<u>64,431</u>
Gross margin	<u>64,304</u>	<u>68,662</u>	<u>43,818</u>
Operating expenses:			
Research and development	4,475	3,381	2,429
Selling, general and administrative	<u>10,830</u>	<u>10,040</u>	<u>7,599</u>
Total operating expenses	<u>15,305</u>	<u>13,421</u>	<u>10,028</u>
Operating income	48,999	55,241	33,790
Other income/(expense), net	1,156	522	415
Income before provision for income taxes	50,155	55,763	34,205
Provision for income taxes	<u>13,118</u>	<u>14,030</u>	<u>8,283</u>
Net income	<u>\$ 37,037</u>	<u>\$ 41,733</u>	<u>\$ 25,922</u>

Note 5 – Income Taxes

The provision for income taxes for 2013, 2012 and 2011, consisted of the following (in millions):

	2013	2012	2011
Federal:			
Current	\$ 9,334	\$ 7,240	\$ 3,884
Deferred	<u>1,878</u>	<u>5,018</u>	<u>2,998</u>
	<u>11,212</u>	<u>12,258</u>	<u>6,882</u>
State:			
Current	1,084	1,182	762
Deferred	<u>(311)</u>	<u>(123)</u>	<u>37</u>
	<u>773</u>	<u>1,059</u>	<u>799</u>
Foreign:			
Current	1,559	1,203	769
Deferred	<u>(426)</u>	<u>(490)</u>	<u>(167)</u>
	<u>1,133</u>	<u>713</u>	<u>602</u>
Provision for income taxes	<u>\$13,118</u>	<u>\$14,030</u>	<u>\$ 8,283</u>

Net income

- Net Income is the final measure of profitability on the income statement. It represents income after all expenses have been paid out.
- It is the bottom line of a company's income statement:

- Net income is also called:**
- Net earnings
 - Net profit
 - “Bottom line”



CONSOLIDATED STATEMENTS OF OPERATIONS
(In millions, except number of shares which are reflected in thousands and per share amounts)

	Years ended		
	<u>September 28, 2013</u>	<u>September 29, 2012</u>	<u>September 24, 2011</u>
Net sales	\$ 170,910	\$ 156,508	\$ 108,249
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Net income	<u>\$ 37,037</u>	<u>\$ 41,733</u>	<u>\$ 25,922</u>

Shares outstanding

- Represent the number of shares of common stock outstanding.
- One share of common stock represents one unit of ownership of a public company.
- For private and public companies alike, shares are held by company founders, investors, management, and other employees of the firm.
- Owners of these shares (shareholders) are generally entitled to vote on the selection of directors and other important matters in proportion with the number of shares they own (i.e. 100 shares = 100 votes) as well as to receive dividends on their holdings.
- Shares that have been issued, but subsequently repurchased by the company are called treasury stock and they are no longer outstanding (we'll discuss why a company may choose to repurchase its shares at a later point).
- **Shares Outstanding = Shares Issued – Treasury Stock**

Shares outstanding – basic vs. diluted

- There are two ways to think about who is a shareholder
- **Basic shares outstanding** includes only the actual shareholders.
- **Diluted shares outstanding** include the impact of potentially dilutive security holders that expand the share base, like stock option holders and preferred shareholders that can convert their preferred shares to common stock.

Dilutive securities

Securities that can be converted into common stock include:

- Stock options & warrants (the right to buy shares at predetermined price)
- Convertible preferred stock
- Convertible debt

Earnings per share

A very common way that investors analyze company profits is by dividing net income by shares outstanding, and this metric is called ‘earnings per share’ (EPS). EPS measures how much of the total *current period profits* belong to each shareholder.

- There are two ways to think about who is a shareholder, which leads to two different ways to reference and calculate EPS:
 - $\text{Basic EPS} = (\text{Net income}) / (\text{Basic shares outstanding})$
 - $\text{Diluted EPS} = (\text{Net income}) / (\text{Diluted shares outstanding})$

Weighted average presentation

- Since the total number of shares outstanding fluctuates as shares from other securities are converted or the company repurchases shares, companies usually show the number of shares outstanding on the income statement as weighted average of the amount of shares outstanding during the period of the income statement (quarter or year).

Earnings per share

- Since diluted shares include all these other securities, diluted EPS will (almost) always be smaller than basic EPS.
- Diluted EPS is the favored approach because it is more economically “real.”



CONSOLIDATED STATEMENTS OF OPERATIONS
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	Years ended		
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Income before provision for income taxes	50,155	55,763	34,205
Provision for income taxes	<u>13,118</u>	<u>14,030</u>	<u>8,283</u>
Net income	<u>\$ 37,037</u>	<u>\$ 41,733</u>	<u>\$ 25,922</u>
Earnings per share:			
Basic	\$ 40.03	\$ 44.64	\$ 28.05
Diluted	<u>\$ 39.75</u>	<u>\$ 44.15</u>	<u>\$ 27.68</u>
Shares used in computing earnings per share:			
Basic	925,331	934,818	924,258
Diluted	<u>931,662</u>	<u>945,355</u>	<u>936,645</u>
Cash dividends declared per common share	\$ 11.40	\$ 2.65	\$ 0.00

Common dividends

- Net income represents the profits that a company generates during a period.
- An important question for CFOs is what to do with those profits.
- One option is to make distributions to shareholders via dividends.
- Dividends represent a portion of a company's net income that is returned to shareholders, typically on a quarterly basis, in the form of cash.
- Dividend policy is set by the Board of Directors, is reviewed regularly, and is disclosed in the company's financial statements.

What else can companies do with profits?

- Keep the profits and reinvest in the business through new purchases, acquisitions, etc.
- Pay down any existing debt obligations or other liabilities.
- Sit on it (grow a pile of cash)

Companies have different dividend policies

Dividends

We have not declared or paid dividends on our common stock since we became a public company. Our board of directors re-evaluates this policy periodically. Any determination to pay cash dividends will be at the discretion of the board of directors and will be dependent upon our results of operations, financial condition, capital requirements, terms of our financing arrangements, and such other factors as the board of directors deems relevant. In addition, our 2011 Credit Agreement restricts dividends to an amount up to \$50 million plus 50% of cumulative consolidated net income from the closing date of the 2011 Credit Agreement plus 50% of the net cash proceeds from equity issuances.



Dividend Policy

We have never declared or paid any cash dividend on our common stock. We intend to retain any future earnings and do not expect to pay any cash dividends in the foreseeable future.



Dividends

The Company paid a total of \$10.5 billion and \$2.5 billion in dividends during 2013 and 2012, respectively, and expects to pay quarterly dividends of \$3.05 per common share each quarter, subject to declaration by the Board of Directors.



Dividends

On March 1, 2012, our Board of Directors approved an annual dividend for fiscal 2013 of \$1.59 per share, an increase of approximately 9% over the dividends paid in fiscal 2012. Dividends per share were \$1.46 and \$1.21 in fiscal 2012 and 2011, respectively. For fiscal 2013, the annual dividend will be paid in four quarterly installments of \$0.3975 per share, according to the following record and payable dates:

Record Date	Payable Date
March 12, 2012	April 4, 2012
May 11, 2012	June 4, 2012
August 10, 2012	September 4, 2012
December 7, 2012	January 2, 2013



We paid aggregate dividends of \$5.0 billion, \$4.4 billion and \$4.2 billion for fiscal 2012, 2011 and 2010, respectively. We expect to pay aggregate dividends of approximately \$5.4 billion in fiscal 2013.

Dividend presentation on the income statement

- Common dividends are usually presented below net income and EPS on an income statement:



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Cash dividends declared per common share	\$ 11.40	\$ 2.65	\$ 0.00

Earnings before interest and taxes (EBIT)

- When analyzing a businesses, analysts are often comparing to the performance of other businesses
- Since non operating items like interest expense, interest income, and taxes can vary widely across even similar types of businesses, analysts focus on operating income, or *earnings before interest and taxes* (EBIT).

Everything above operating profit is tied to core operations

Everything below operating profit is not directly related to the operations of the business

Consolidated Statements of Earnings

Amounts in millions except per share amounts; Years ended June 30

	2013	2012	2011
NET SALES	\$ 84,167	\$ 83,680	\$ 81,104
Cost of products sold	42,428	42,391	39,859
Selling, general and administrative expense	26,950	26,421	25,750
Goodwill and indefinite-lived intangible asset impairment charges	308	1,576	—
OPERATING INCOME	14,481	13,292	15,495
Interest expense	667	769	831
Interest income	87	77	62
Other non-operating income, net	942	185	271
EARNINGS FROM CONTINUING OPERATIONS BEFORE INCOME TAXES	14,843	12,785	14,997
Income taxes on continuing operations	3,441	3,468	3,299
NET EARNINGS FROM CONTINUING OPERATIONS	11,402	9,317	11,698



Earnings before interest and taxes, depreciation & amortization (EBITDA)

- An even more popular profit metric is EBITDA, which starts with EBIT but adds back D&A expense.
- The rationale for using EBITDA as a way to compare companies is twofold:
 1. D&A is a huge noncash expense for fixed asset and intangible asset intensive businesses, and stripping out the biggest noncash expense provides a more accurate picture of “real” profits during the year.
 2. Since companies can use different useful life assumptions and even depreciation methods to calculate D&A this can significantly skew the comparison of operating profitability across two otherwise identical firms

Earnings before interest and taxes, depreciation & amortization (EBITDA)

- Since D&A is not usually disclosed explicitly on the income statement, analysts have to go to the cash flow statement to get D&A and simply add it back to EBIT:

P&G

Consolidated Statements of Earnings

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NET SALES	\$ 84,167	\$ 83,680	\$ 81,104
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NET EARNINGS FROM CONTINUING OPERATIONS	11,402	9,317	11,698

Consolidated Statements of Cash Flows

<u>Amounts in millions; Years ended June 30</u>	2013	2012	2011
CASH AND CASH EQUIVALENTS, BEGINNING OF YEAR	\$ 4,436	\$ 2,768	\$ 2,879
OPERATING ACTIVITIES			
Net earnings	11,402	10,904	11,927
Depreciation and amortization	2,982	3,204	2,838

Earnings before interest and taxes, depreciation & amortization (EBITDA)

- Calculating EBITDA is a bit trickier than EBIT because it is not disclosed on the income statement and it is not a GAAP-recognized metric. An easy way to visualize the problem is with two sample income statement:

GAAP income statement	
<i>This is what analysts actually have</i>	
Revenue	100
Less: Cost of Goods Sold	25
Less: SG&A	20
EBIT	55
Less: Interest expense	5
Pretax income	50
Less: Tax expense	20
Net income	30

The ideal income statement	
<i>If analysts had this level of detail they wouldn't need the cash flow statement to calculate EBITDA for they could calculate it directly from the income statement</i>	
Revenue	100
Less: Cost of Goods Sold (excluding D&A)	20
Less: SG&A (excluding D&A)	15
EBITDA	65
Less: D&A	10
EBIT	55
Less: Interest expense	5
Pretax income	50
Less: Tax expense	20
Net income	30

Income statement summary

- The income statement is a summary of a company's profitability over a certain period of time.
- Profitability is the difference between revenues and expenses generated by a company's activities.
- Revenues are recognized when an economic exchange occurs, and expenses associated with a product are matched during the same period as revenue generated from that product.
- Special care must be taken to distinguish operating expenses (stemming from core activities) from non-operating costs (arising from peripheral transactions) in arriving at a company's net income.
- Net income is an important indicator of a company's operating performance.
- Analysts focus on EPS, EBIT, and EBITDA as measures of a company's profitability.

The lemonade stand exercise – build your own income statement

1	On January 1, 2014, you enter the lemonade stand business. In order to buy all the required equipment and supplies to get started, you estimate that you will need \$50k, plus an extra \$100k for cushion.
2	You open up a business checking account into which you put \$100k of your own money. You incorporated an issued yourself – the sole shareholder - 5,000 shares.
	In addition, you borrow \$50k from the bank at a 10% annual interest rate.
3	You buy \$20k worth of lemons and paper cups (just enough to make 100k cups of lemonade). You also buy a lemon squeezer for \$15k and a lemonade stand for \$15k. You buy a cash register for \$2k.
4	You estimate that the lemon squeezer and lemonade stand will have useful lives of 3 years, while the cash register will be 5 years. At the end of their useful lives, assume they will be obsolete and be thrown away (assume straight-line depreciation).
5	You operate the business for a year and sell 100k cups of lemonade for \$1 each.
6	You hired a lemonade mixer and paid him \$15k for the year
7	In addition, you also hired a cashier to ring people up and paid him \$15k for the year.
8	Tax rate for the lemonade stand business is 40%.
9	The accounting period ends on 12/31/14.
	<p>Create an income statement for the lemonade stand for 2014 based on this information</p> <p><i>Hint: much of the background information will not be reflected in the income statement – your ability to understand what activities of a company are recorded on its income statement and which are left out is the first step in identifying which of them belong in this financial statement.</i></p>

The lemonade stand exercise – build your own income statement

<i>\$ in thousands, except per share data</i>	<i>Jan. 1 – Dec. 31, 2014</i>
Revenue	
Cost of Goods Sold	
SG&A	
Operating income (EBIT)	
Interest expense, net	
Non-operating income / (expenses)	
Pretax income	
Less: Tax expense	
Net income	
Weighted average basic shares outstanding	
EPS	
EBITDA	

The lemonade stand exercise – build your own income statement

<i>\$ in thousands, except per share data</i>	<i>Jan. 1 – Dec. 31, 2014</i>
Revenue	100.0
Cost of Goods Sold	40 ($20+5+15$)
SG&A	20.4 ($15 + 5 + 0.4$)
Operating income (EBIT)	39.6
Interest expense, net	5.0
Non-operating income / (expenses)	0.0
Pretax income	34.6
Less: Tax expense	13.84
Net income	20.76
Weighted average basic shares outstanding	5,000
EPS	\$4.152
EBITDA	50.0

The lemonade stand exercise II

Additionally during the period:

1	You earn \$2k in interest income from your business account.
2	You are sued by a customer who slipped on spilled lemonade – you settle out of court for \$5k.
3	On June 30, 2014, you find an investor who invests \$80k and you issue her 4,000 new shares.
	Modify the income statement for the lemonade stand for 2014 accordingly <i>Hint: much of the background information will not be reflected in the income statement – your ability to understand what activities of a company are recorded on its income statement and which are left out is the first step in identifying which of them belong in this financial statement.</i>

The lemonade stand exercise II

<i>\$ in thousands, except per share data</i>	<i>Jan. 1 – Dec. 31, 2014</i>
Revenue	100.0
Cost of Goods Sold	40 ($20+5+15$)
SG&A	20.4 ($15 + 5 + 0.4$)
Operating income (EBIT)	39.6
Interest expense, net	3.0
Non-operating income / (expenses)	(5.0)
Pretax income	31.6
Less: Tax expense	12.64
Net income	18.96
Weighted average basic shares outstanding	7,000
EPS	\$2.709
EBITDA	50.0

Crash Course in Accounting & Financial Statement Analysis, Third Edition

Balance Sheet

6

Introducing the balance sheet

- The balance sheet reports the company's resources (assets) and how those resources were funded (liabilities and shareholders' equity) on a particular date (end of the quarter, end of the year).
 - Contrast with the income statement, which reports a company's revenues, expenses and profitability over a specified period of time,
- The fundamental equation in accounting is: ***Assets = Liabilities + Equity***

Historical Cost & Conservatism Principle Revisited

- Recall that financial statements report company's resources – including most balance sheet items – at their historical (acquisition) cost.
- By not allowing assets to be overstated, the historical cost principle is an example of conservatism.
- Governed by the historical cost principle, the balance sheet does not report the true market value of a company – only its resources and funding at their historical cost.

Assets

Assets represent the company's resources. To qualify as an asset, the following requirements must be met:

- A company must own the resource
- The resource must be of value
- The resource must have a quantifiable, measurable cost

Common asset types

Assets	Description
Cash	Money held by the company in its bank accounts
Marketable Securities	Debt or equity securities held by the company
Accounts Receivable (A/R)	Payment owed to a business by its customers for products and services already delivered to them
Inventories	Inventories represent any unfinished or finished goods that are waiting to be sold, and the direct costs associated with the production of these goods
Prepaid expenses	When a company prepays for things like utilities, insurance and rents, the right to the future services become assets.
Property, Plant & Equipment (PP&E)	Land, buildings, and machinery used in the manufacture of the company's services and products
Intangible Assets & Goodwill	Non-physical assets such as patents, trademarks, and goodwill acquired by the company that have value based on the rights belonging to that company

Assets

Exercise: Identifying assets

Which of the following accounts are assets for Apple

- Apple's cash reserves
- An office building owned by Apple
- Apple's iPad inventories
- The cost of Apple's software developers
- The value of Apple's trademark
- The value of Apple management's personal cars
- Apple's iPhone revenue
- The dividends that Apple issues to shareholders

Assets

Exercise: Identifying assets

Which of the following accounts are assets for Apple

- Apple's cash reserves
- An office building owned by Apple
- Apple's iPad inventories
- The value of Apple's software developers - *value cannot be measured*
- The value of Apple's trademark - *not acquired at measurable cost*
- The value of Apple management's personal cars - *not owned by company*
- Apple's iPhone revenue - *revenue is converted into resources like cash & A/R*
- The dividends that Apple issues to shareholders - *resources like cash must be used to fund dividends*

Liabilities & equity

Liabilities and Equity represent the company's sources of funds (how it pays for assets).

- **Liabilities represent what the company owes to others:**
 1. They must be measurable
 2. Their occurrence is probable
- **Equity represents sources of funds through:**
 1. Equity investment
 2. Retained earnings (what the company has earned through operations since its inception)

Liabilities & equity

Common liability & equity categories

Liabilities	Description
Accounts Payable	A company's obligations to suppliers for services and products already purchased from them, but which have not been paid. In other words, accounts payable represent the company's unpaid bills to its suppliers for services obtained on credit from them.
Accrued Expenses	Expenses like employee compensation that the company has incurred, but for which it has not yet paid.
Short term Debt	Debt due within 12 months.
Long-Term Debt	Debt whose maturity exceeds 12 months.

Equity	Description
Preferred Stock	Stock that has special rights and takes priority over common stock.
Common Stock	Represents capital received by a company when it issues shares.
Treasury Stock	Common stock that had been issued and then reacquired (bought back) by a company .
Retained Earnings	Total company earnings / losses since its inception less all dividends.

Liabilities & equity

Exercise: Identifying liabilities

Which of the following accounts are liabilities for Apple

- Funds owed to suppliers
- Apple's long term debt
- The possibility that employees will strike
- Office expenses generated during the period
- The depreciation of assets
- Dividends owed to preferred shareholders

Liabilities & equity

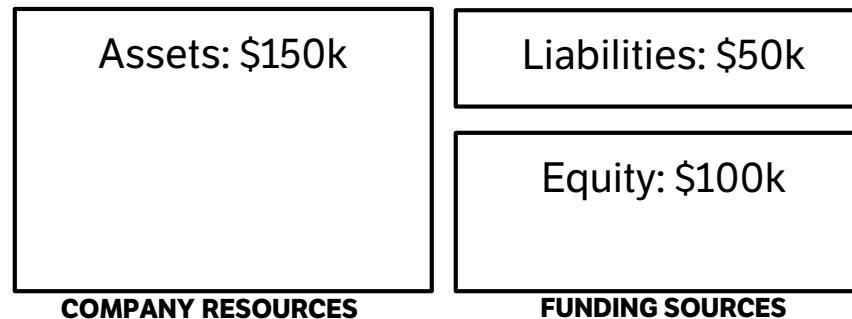
Exercise: Identifying liabilities

Which of the following accounts are liabilities for Apple

- Funds owed to suppliers
- Apple's long term debt
- The possibility that employees will strike
- Office expenses generated during the period
- The depreciation of assets
- Dividends owed to preferred shareholders

The Lemonade Stand and the Accounting Equation

- Recalling the lemonade stand, you opened up a business checking account into which you put \$100k of your own money and borrowed \$50k from the bank, which agreed to lend it to you at a 10% annual interest rate.
- At its inception on January 1, 2014, what are the lemonade stand's assets (resources) and how were those assets funded (liabilities and shareholders' equity)?



- When the lemonade stand's assets increased by \$150k, this was accompanied by a corresponding increase in liabilities and shareholders' equity.

Balance sheet

- In reality, companies have more assets than just cash - companies use cash to buy inventories, fixed assets (land, buildings, machinery), and make investments.
- Cash is reduced and other assets are increased.
- Any change in assets or liabilities or shareholders' equity is accompanied by an offsetting change that keeps the balance sheet in balance.

The accounting equation

- Every single transaction can be viewed as having two sides – the source of funds, and the way the funds were used (use of funds). Other examples:
 - Buying a plant
 - Cash is the **source of funds**
 - The **funds were used** to build the plant
 - Buying inventory on credit from the seller
 - The **source of funds** is the creation of a new liability (accounts payable)
 - The **funds were used** to buy inventory
 - Issuing stock
 - The additional equity investors are **the source of funds** and lead to an increase in equity
 - The **funds were used** to add cash for the company
- It is because of this equivalence sources and uses of funds that assets **will always equal** liabilities and equity by definition. It is two sides of the same coin.

Double entry accounting

- Before moving further, we need to introduce a framework that will help us keep track movements on the balance sheet. The framework is called double entry accounting and it records the two sides of every economic event – 1) the funding source and 2) how the funds are used.
- Every transaction is recorded through the use of a “credit” (source of funds) and an offsetting “debit” (use of funds) such that total debits always equal total credits in value.
- In the lemonade stand example, several things happened:
 1. The increase in liabilities was a **source of funds** and thus a **credit**
 2. The increase in equity was a **source of funds** and thus a **credit**
 3. The increase in cash represents **how the funds were used** and thus a **debit**

Double entry accounting

- Double-entry accounting is depicted through the use of a “T account” to track **each** source and use of funds in a transaction:

T-Account title	
Debit (Dr.)	Credit (Cr.)
<ul style="list-style-type: none">Increases in assetsDecreases in liabilities and equity	<ul style="list-style-type: none">Increases in liabilities and equityDecreases in assets

- In our lemonade stand example, we would see 3 T accounts:

Debt		Equity		Cash	
	50k		100k	150k	

Double entry accounting

- Let's further expand the lemonade stand. After obtaining a \$50k bank loan and putting up your own \$100k, you purchased \$20k worth of lemons and paper cups, a lemon squeezer for \$15k, a lemonade stand for \$15k, and a cash register for \$2k.

Inventories	
20k	

Cash	
	20k

PP&E	
15k	

Cash	
	15k

PP&E	
15k	

Cash	
	15k

PP&E	
2k	

Cash	
	2k

In these transactions, cash is a source of funds (a credit) used to purchase inventories and PP&E, which were uses of those funds (debits)

- Note that these transactions involved only assets; liabilities (bank loan of \$50) and shareholders' equity (\$100) did not change.
- At the inception of the lemonade stand, cash was a use of funds (debit), whereas it became a source of funds (credit) involving the purchase of inventories and PP&E.

Double entry accounting

- A modified method of recording the two purchases (on the previous slide) using double-entry accounting without the explicit use of the T account schematic is as follows:

	Debits (Dr.)	Credits (Cr.)
Inventory - Lemons & cups	20k	
PP&E - Lemonade stand	15k	
PP&E - Lemon squeezer	15k	
PP&E - Cash register	2k	
Cash		52k

Why is double-entry accounting important?

- It facilitates understanding of the relationship between assets (resources) and liabilities/shareholders' equity (funding) of a company.
- The income statement, the balance sheet, and the statement of cash flows are connected; the relationship among these three statements and their impact on one another can often be initially “illustrated” through debits and credits.

Revisiting our lemonade stand

- Let's build a balance sheet for the lemonade stand business that we started.
- Since balance sheets represent a point in time, as opposed to the income statement which represents a period, we will want to create an opening balance sheet for January 1, and a closing balance sheet for December 31.
- Once we raised some capital (\$100 of equity and a \$50 loan), our opening balance sheet simply reflected a \$150 in cash assets and the equity and debt obligations (see table).
- But the very same day, we also started buying inventory and equipment (see next page) . . .

Balance sheet as of 1/1/14

Assets	
Cash	150
A/R	0
Inventories	0
PP&E	0
Total assets	150
Liabilities	
Accounts Payable	0
Debt	50
Total liabilities	50
Equity	
Common stock	100
Retained earnings	0
Total equity	100

Revisiting our lemonade stand

Cash represents what is left of the \$150k after making all the purchases to set up your lemonade business

Accounts receivable will be recorded if anyone buys lemonade on credit.

Inventories consists of \$20 worth of lemons / paper cups.

PP&E consists of the lemon squeezer, lemonade stand, and a cash register.

Accounts payable will be recorded if buys on credit. Up until now, everything purchased was for cash.

Debt represents the \$50 bank loan.

Common Stock represents the \$100k of your own money that you invested as the sole shareholder in the company

Retained earnings will be recorded once your lemonade stand starts generating net income.

Balance sheet as of 1/1/14

Assets	
Cash	98
A/R	0
Inventories	20
PP&E	32
Total assets	150
Liabilities	
Accounts Payable	0
Debt	50
Total liabilities	50
Equity	
Common stock	100
Retained earnings	0
Total equity	100

Revisiting our lemonade stand

- So that's what we started with
- To get to a period closing balance sheet, we need to take into account all the things that happened during the year
- Many of these things were reflected on the income statement
- **How these items affect the balance sheet is critical in understanding how the financial statements are linked**

<i>\$ in thousands, except per share data</i>	<i>Jan. 1 – Dec. 31, 2014</i>
Revenue	100.0
Cost of Goods Sold	40.0
SG&A	20.4
Operating income (EBIT)	39.6
Interest expense, net	3.0
Non-operating income / (expenses)	(5.0)
Pretax income	31.6
Less: Tax expense	12.64
Net income	18.96
Basic shares out. (weighted avg.)	7,000
EPS	\$2.709
EBITDA	50.0

The I/S is linked to the B/S via retained earnings

- The income statement is connected to the balance sheet through retained earnings in shareholders' equity
 - **All income** on the income statement (revenue, interest income, etc.) increases retained earnings on the balance sheet (credits)
 - **All expenses** on the income statement (COGS, SG&A, tax, etc.) decrease retained earnings (debits)

Income
Statement



Retained
Earnings

Income statement impact on the B/S: Revenue

- The lemonade stand generated \$100k in revenues during the year (assume all cash), so increase your cash balance within the asset side of the balance sheet. The additional cash also increases your retained earnings within the shareholders' equity section.

**Retained earnings
(Revenue) ↑**



Impact of revenue on the balance sheet

	Debits (Dr.)	Credits (Cr.)
Asset > Cash (revenue)	100	
Equity > Retained earnings (revenue)		100

Income statement impact on the B/S: COGS

- This category is a little trickier because there were several items that impacted COGS:
 - The raw materials (lemons and cups):** On day 1, you purchased \$20k worth of cups and lemons. These inventories were fully used up during the year and recognized via COGS expense.
 - Direct labor:** \$15k employee mixing the lemonade, paid in cash.
 - Depreciation (lemon squeezer):** On day 1, you purchased a \$15k lemon squeezer for which you recorded \$5 of depreciation during the period, reducing the value of PP&E by \$5k (to \$10k) by period-end.

Retained earnings
(COGS) ↓



Inventory ↓
Cash ↓
PP&E ↓

Impact of COGS on the balance sheet

	Debits (Dr.)	Credits (Cr.)
Equity > Retained earnings (COGS)	40	
Asset > Cash (employee salary)		15
Asset > PP&E (Depreciation)		5
Asset > Inventory		20

Income statement impact on the B/S: SG&A

- Employee expense:** You hired an employee to sell the lemonade and paid him \$15k in cash. As a result, your cash balance was reduced by \$15k, and retained earnings were decreased by \$15k.
- Depreciation (lemonade stand and cash register):** On day 1, you purchased a \$15k stand to sell your lemonade and a \$2k cash register, which you depreciate using straight-line over 3 years and 5 years, respectively.

Retained earnings
(SG&A) ↓



Inventory ↓
Cash ↓
PP&E ↓

Impact of SG&A on the balance sheet

	Debits (Dr.)	Credits (Cr.)
Equity > Retained earnings (SG&A)		
Asset > Cash (employee salary)	20.4	15.0
Asset > PP&E		5.4

Income statement impact on the B/S: Net interest expense

1. **Interest expense:** Reduces retained earnings and cash
2. **Interest income:** Increases retained earnings and cash

Impact of interest expense on the balance sheet

	Debits (Dr.)	Credits (Cr.)
Equity > Retained earnings (Interest expense)	3.0	
Asset > Cash (interest income)	2.0	
Asset > Cash (interest expense)		5.0

**Retained earnings
(interest expense, net) ↓**



**Cash ↓
Cash ↑**

Note that there was no impact to debt from the payment of cash interest – debt level stays the same.

Income statement impact on the B/S: Non-operating expenses

- You settled a lawsuit for \$5k, lowering retained earnings and cash.

**Retained earnings
(legal settlement) ↓**



Cash ↓

Impact of legal settlement on the balance sheet

	Debits (Dr.)	Credits (Cr.)
Equity > Retained earnings (legal settlement)		
Asset > Cash (legal settlement)	5.0	5.0

Income statement impact on the B/S: Tax expense

- Your retained earnings and cash balance were both reduced by \$12.64 when you paid your taxes

Retained earnings
(tax expense) ↓



Cash ↓

Impact of tax expense on the balance sheet

	Debits (Dr.)	Credits (Cr.)
Equity > Retained earnings (tax expense)	12.64	
Asset > Cash (tax expense)		12.64

Changes on the B/S that don't affect RE

- Up to now, every activity was related to the income statement so retained earnings was impact.
- Recall that right at the end of the year, we also raised \$80k from an investor
- This does not directly affect net income or retained earnings; rather this results in cash going up (debit), while common equity increases (credit)

**Common stock
(capital raise) ↑**



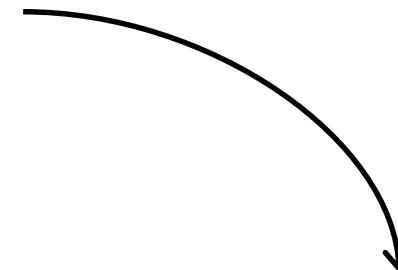
Cash ↑

Impact of equity capital raise on the balance sheet

	Debits (Dr.)	Credits (Cr.)
Asset > Cash (capital raise)	80	
Equity > Common stock (capital raise)		80

Income statement impact on the B/S

	Debits	Credits
Asset > Cash (capital raise)	80	
Asset > Cash (revenue)	100	
Asset > Cash (salary in COGS)		15
Asset > Cash (salary in SG&A)		15
Asset > Cash (interest expense)		5
Asset > Cash (interest income)	2	
Asset > Cash (legal settlement)		5
Asset > Cash (tax expense)		12.64
Net change in cash	129.36	
Asset > Inventory (via COGS)		20
Net change in inventory	20	
Asset > PP&E (depreciation in COGS)		5
Asset > PP&E (depreciation in SG&A)		5.4
Net change in PP&E	10.4	
Equity > Common stock (capital raise)		80
Equity > RE (revenue)		100
Equity > RE (COGS)	40	
Equity > RE (SG&A)	20.4	
Equity > RE (net interest expense)	3	
Equity > RE (legal settlement)	5	
Equity > RE (tax expense)	12.64	
Net change in equity		98.96



	Debits	Credits
Net change in cash	129.36	
Net change in inventory		20.00
Net change in PP&E		10.40
Net change in equity (common stock)		80.00
Net change in equity (RE)		18.96
Total	129.36	129.36

Income statement impact on the B/S

Balance sheet as of 1/1/14

Assets	
Cash	98
A/R	0
Inventories	20
PP&E	32
Total assets	150
Liabilities	
Accounts Payable	0
Debt	50
Total liabilities	50
Equity	
Common stock	100
Retained earnings	0
Total equity	100

+

	Debits	Credits
Net change in cash	129.36	
Net change in inventory		20.00
Net change in PP&E		10.40
Net change in common stock		80.00
Net change in RE		18.96
Total	129.36	129.36

= ?

Summary notes

- Net changes in assets always equal net changes in liabilities & equity.
- Also notice that retained earnings increased by \$18.96, exactly the net income generated during the year; retained earnings is the link between the B/S and the I/S.

Income statement impact on the B/S

Please build the closing balance sheet:

Balance sheet as of 12/31/14

Assets	
Cash	
A/R	
Inventories	
PP&E	
Total assets	
Liabilities	
Accounts Payable	
Debt	
Total liabilities	
Equity	
Common stock	
Retained earnings	
Total equity	

Assets are presented in descending order of liquidity

- Cash is the most liquid asset so it's always first
- Cash is usually followed by assets like accounts receivable and inventory, as these can be converted into cash (i.e. sold) quickly
- Less liquid assets like PP&E and intangible assets are listed towards the bottom of the asset side of the balance sheet.

Current assets

- In fact, as long as assets can be converted into cash within 12 months, they are considered “current” and classified as such on the balance sheet.



(Amounts in millions except per share data)

	As of January 31,	
	2012	2011
ASSETS		
<i>Current assets:</i>		
Cash and cash equivalents	\$ 6,550	\$ 7,395
Receivables, net	5,937	5,089
Inventories	40,714	36,437
Prepaid expenses and other	1,685	2,960
Current assets of discontinued operations	89	131
Total current assets	54,975	52,012
<i>Property and equipment:</i>		
Property and equipment	155,002	148,584
Less accumulated depreciation	(45,399)	(43,486)
Property and equipment, net	109,603	105,098
<i>Property under capital lease:</i>		
Property under capital lease	5,936	5,905
Less accumulated amortization	(3,215)	(3,125)
Property under capital lease, net	2,721	2,780
Goodwill	20,651	16,763
Other assets and deferred charges	5,456	4,129
Total assets	\$ 193,406	\$ 180,782

Liabilities are presented in order of when they are to be paid

- Liabilities like short term debt and accounts payable are to be paid within 12 months and are labeled “current.”
- Long term liabilities (such as long-term debt) are not due within the year.

LIABILITIES AND EQUITY

Current liabilities:



Short-term borrowings	\$ 4,047	\$ 1,031
Accounts payable	36,608	33,676
Accrued liabilities	18,154	18,701
Accrued income taxes	1,164	157
Long-term debt due within one year	1,975	4,655
Obligations under capital leases due within one year	326	336
Current liabilities of discontinued operations	26	47
Total current liabilities	62,300	58,603
Long-term debt	44,070	40,692
Long-term obligations under capital leases	3,009	3,150
Deferred income taxes and other	7,862	6,682
Redeemable noncontrolling interest	404	408

Current vs. non-current balance sheet items

Exercise: Current vs non-current assets and liabilities

Label each item as either 1) Current asset, 2) Non-current asset 3) Current liability 4) Long-term liability or none of the above

Cash	
Money owed to suppliers within 30 days	
Six-month bank loan	
Warehouse	
Inventories waiting to be sold	
A 5-year bank loan due this year	
Marketing employee salaries	
Corporate jet	

Current vs. non-current balance sheet items

Exercise: Current vs non-current assets and liabilities

Label each items as either 1) Current asset, 2) Non-current asset 3) Current liability 4) Long-term liability

Cash	Current asset
Money owed to suppliers within 30 days	Current liability
Six-month bank loan	Current liability
Warehouse	Non-current asset
Inventories waiting to be sold	Current asset
A 5-year bank loan due this year	Current liability
Marketing employee salaries	None of the above
Corporate jet	Non-current asset

Cash and equivalents

- Cash equivalents* are extremely liquid assets; examples include U.S. Treasury bills, which have a term of less than or equal to 90 days.
- You'll also see marketable securities (debt or equity investments held by the company) included in this line item or broken out separately.
- Below is Walmart's description of what is included in their cash equivalents:



(Amounts in millions except per share data)

ASSETS

Current assets:

	<u>As of January 31,</u>	
	<u>2012</u>	<u>2011</u>
Cash and cash equivalents	\$ 6,550	\$ 7,395
Receivables, net	5,937	5,089
Inventories	40,714	36,437
Prepaid expenses and other	1,685	2,960
Current assets of discontinued operations	89	131
Total current assets	54,975	52,012

Cash and Cash Equivalents

The Company considers investments with a maturity when purchased of three months or less to be cash equivalents. All credit card, debit card and electronic benefits transfer transactions that process in less than seven days are classified as cash and cash equivalents. The amounts due from banks for these transactions classified as cash totaled \$1.2 billion at January 31, 2012 and 2011. In addition, cash and cash equivalents includes restricted cash primarily related to cash collateral holdings from various counterparties, as required by certain derivative and trust agreements, of \$547 million and \$504 million at January 31, 2012 and 2011, respectively.

The Company's cash balances are held in various locations around the world. Of the Company's \$6.6 billion and \$7.4 billion of cash and cash equivalents at January 31, 2012 and 2011, respectively, \$5.6 billion and \$7.1 billion, respectively, were held outside of the U.S. and are generally utilized to support liquidity needs in the Company's foreign operations.

Accounts receivable (A/R)

- A/R represent sales that a company has made on credit; the product has been sold and delivered, but the company has not yet received the cash for the sale.
- Below is Walmart's description of what is included in their A/R.



	As of January 31,	
	2012	2011
<i>(Amounts in millions except per share data)</i>		
ASSETS		
<i>Current assets:</i>		
Cash and cash equivalents	\$ 6,550	\$ 7,395
Receivables, net	5,937	5,089
Inventories	40,714	36,437
Prepaid expenses and other	1,685	2,960
Current assets of discontinued operations	89	131
Total current assets	54,975	52,012

Receivables

Receivables are stated at their carrying values, net of a reserve for doubtful accounts. Receivables consist primarily of amounts due from:

- insurance companies resulting from pharmacy sales;
- banks for customer credit card, debit card and electronic bank transfers that take in excess of seven days to process;
- suppliers for marketing or incentive programs;
- consumer financing programs in certain international subsidiaries; and
- real estate transactions.

Accounts receivable (A/R)

- Accounts receivable are linked to revenues on the income statement:
 - Suppose a book publisher has sold books to several book retailers and so far has collected \$800 in cash; the remaining \$200 are due within 14 days
 - Recall that under accrual, it is recognized when earned and payment is reasonably assured, not necessarily when cash is collected; so the publisher has recognized the full \$1,000 as revenue
 - The journal entries would be as follows:

Impact of A/R on the balance sheet

	Debits (Dr.)	Credits (Cr.)
Asset > Cash (revenue)	800	
Asset > A/R	200	
Equity > Retained earnings (revenue)		1,000

Prepaid expenses

- When a company prepays for things like utilities, insurance and rents, cash is reduced, but the expense is not yet recognized on the I/S.
- Under the accrual concept, expenses are recognized when the associated benefit has been received. With prepayments, the benefit hasn't yet been received, so an asset is created to reflect that the company now has the right to the future services.
- Here we see that prepaid expenses, represent a sizeable part of PG's B/S.
 - The journal entries would be as follows:

Consolidated Balance Sheets

Amounts in millions; June 30

Assets	2013	2012
CURRENT ASSETS		
Cash and cash equivalents	\$ 5,947	\$ 4,436
Accounts receivable	6,508	6,068
INVENTORIES		
Materials and supplies	1,704	1,740
Work in process	722	685
Finished goods	4,483	4,296
Total inventories	6,909	6,721
Deferred income taxes	948	1,001
Prepaid expenses and other current assets	3,678	3,684
TOTAL CURRENT ASSETS	23,990	21,910



Prepaid expenses

- Suppose that a company decided to prepay \$5k to cover the next 12 months' worth of utilities because of a discount offered by the electric company.
- Please identify the relevant journal entries:
- Assume these utility expenses impact the SG&A line when they are finally recognized as an expense.*

On the day of the prepayment

	Debits	Credits
Asset > Cash		5
Asset > Prepaid expenses	5	
Equity > Retained earnings (SG&A)		

6 months later – half a year's worth of utilities have been used up

	Debits	Credits
Asset > Cash		
Asset > Prepaid expenses		2.5
Equity > Retained earnings (SG&A)	2.5	

Inventory

- Inventories represent goods waiting to be sold, and direct and (sometimes indirect) costs associated with the production or procurement of these goods.
- *For a merchandiser*, inventory is simply the products procured for resale.
- *For a manufacturer*, inventory includes the costs of producing the finished inventory:
 - Raw materials used in the manufacture of finished inventory (i.e. oil, steel, lumber, etc.).
 - Work-in-process: Direct labor and factory overhead used in producing the finished inventory.

Inventory cycles out of the B/S and into the I/S as COGS

- Before inventory get expensed as COGS and are matched to the revenues they help generate (matching principle), they are part of the company's inventories (on the balance sheet):

BEGINNING INVENTORY
+ PURCHASES OF NEW INVENTORY
- COST OF GOODS SOLD (COGS)
= **ENDING INVENTORY**

Inventory

- Below are the journal entries for a company that sells \$50 worth of inventories during the year:

Impact of inventory on the balance sheet

	Debits (Dr.)	Credits (Cr.)
Equity > Retained earnings (COGS) Asset > Inventory	50	50

Exercise: Inventories

Your firm sells office supplies:

- Beginning inventory = \$500,000
- COGS during period = \$200,000
- New inventory purchased during period = \$300,000

Calculate the ending inventory balance

Inventory

Exercise: Inventories

Your firm sells office supplies:

- Beginning inventory = \$500,000
- COGS during period = \$200,000
- New inventory purchased during period = \$300,000

Calculate the ending inventory balance

\$600,000

Inventory costing (LIFO vs. FIFO vs. average cost)

Imagine Walmart procured 1,000 TV sets for \$500 a piece in the beginning of this year. As inventories began to dwindle, several months later Walmart bought another 1,000 TVs, but this time the manufacturer cited increased transportation costs and now charges \$600 a piece.

- If Walmart sells 1,300 TV sets this year, what value do we assign to COGS, and what value should ending inventories hold? Three methods of inventory accounting have been established to answer this question:
- **First In, First Out (FIFO):** The cost of the inventory first purchased (first in) is the cost assigned to the first inventory to be sold (COGS – first out). Remaining inventory reflect the latest costs.
- **Last In, First Out (LIFO):** The items purchased last (last in) are the first to be sold (COGS – first out). Therefore, the cost of inventory most recently acquired (ending inventory – last in) is assigned to COGS (first out). Ending inventory reflects cost of the first purchased inventories.
- **Average Cost:** COGS and ending inventory are calculated as: $COGS / \text{total number of goods}$.

Difference alert: US GAAP vs. IFRS

	US GAAP	IFRS
Inventory	LIFO allowed	LIFO not allowed

Inventory costing (LIFO vs. FIFO vs. average cost)

Exercise: Calculate the following, given the fact pattern below

	Ending inventory balance	Gross profit
FIFO		
LIFO		
Average cost		
Beginning inventory	35 units at \$1	
Inventory Purchases		
50 units at \$2	Sales	
20 units at \$3	20 units at \$4	
30 units at \$4	30 units at \$5	
	17 units at \$7	

Inventory costing (LIFO vs. FIFO vs. average cost)

- Because our example assumed that the prices of inventories were rising, COGS were higher using LIFO vs. FIFO. This accounting choice led to lower net income under LIFO and thus lower taxes.
- The tax benefit of LIFO accounting is what makes it preferable for many U.S. companies over FIFO accounting in periods of rising inventory prices.

Exercise: LIFO vs. FIFO vs. Average cost

	Ending inventory	Gross profit
FIFO	216	250
LIFO	101	135
Average cost	159	193
Beginning inventory		35 units at \$1
Inventory Purchases		Sales
50 units at \$2		20 units at \$4
20 units at \$3		30 units at \$5
30 units at \$4		17 units at \$7

LIFO		FIFO		Average Cost	
Sales		Sales		Sales	
Units	Sales	Units	Sales	Units	Sales
20	\$80	20	\$80	20	\$80
30	\$150	30	\$150	30	\$150
17	\$119	17	\$119	17	\$119
67	\$349	67	\$349	67	\$349
COGS		COGS		COGS	
Units	Cost	Units	Cost	Units	Cost
30	\$120	35	\$35	67	\$156
20	\$60	32	\$64		
17	\$34				
67	\$214	67	\$99	67	\$156
Gross Margin		Gross Margin		Gross Margin	
\$135		\$250		\$193	
Inventories		Inventories		Inventories	
Units	Cost	Units	Cost	Units	Cost
35	\$35	18	\$36	68	\$159
33	\$66	20	\$60		
		30	\$120		
68	\$101	68	\$216	68	\$159

$$\text{LIFO Reserve} = \text{FIFO Inv} - \text{LIFO Inv.} = \$115$$

LIFO Reserve – The link between FIFO and LIFO inventory methods

- When companies use the LIFO method, their footnotes must disclose what the value of their inventories would have been under the FIFO method. The difference is called the LIFO reserve.
- The LIFO Reserve allows comparison of inventories and COGS across both methods:
 - LIFO inventory + **LIFO Reserve** = FIFO inventory
 - FIFO COGS + **LIFO Reserve** = LIFO COGS

In practice

When comparing a LIFO company against a FIFO company, the LIFO reserve must be subtracted from the LIFO company's COGS to arrive at apples-to-apples profits comparisons.

Below is Walmart's inventory disclosure – they use LIFO, but it is very similar to FIFO so no LIFO reserve was disclosed:

Inventories



The Company values inventories at the lower of cost or market as determined primarily by the retail method of accounting, using the last-in, first-out ("LIFO") method for substantially all of the Walmart U.S. segment's merchandise inventories. The retail method of accounting results in inventory being valued at the lower of cost or market since permanent markdowns are currently taken as a reduction of the retail value of inventory. The Sam's Club segment's merchandise is valued based on the weighted-average cost using the LIFO method. Inventories for the Walmart International operations are primarily valued by the retail method of accounting and are stated using the first-in, first-out ("FIFO") method. At January 31, 2012 and 2011, the Company's inventories valued at LIFO approximate those inventories as if they were valued at FIFO.

Writing down inventories

- The B/S shows assets like inventories at historical (acquisition) cost . Because of the historical cost and conservatism principle, companies can't mark them up to market value under GAAP.
- But can they be marked down if inventory is destroyed, deteriorates or becomes obsolete?
 - Yes! Under US GAAP, the **lower of cost-or-market (LCM) rule** dictates that if the market value of inventory falls below historical cost, they must be written down to market value. Under IFRS the idea is similar; the rule is called lower of cost or net realizable value
 - The loss must be recognized immediately **on the income statement**. The loss can be presented in COGS, in 'Other operating (or non operating) expenses' or – if it is a big write down, as a separate line item
- Recalling our lemonade stand example, suppose that lemons sitting in inventories rot and are determined to be un-sellable; a \$5 write-down has to take place. Here is how it affects the financial statements:

	Debits (Dr.)	Credits (Cr.)
Equity > Retained earnings (write down) Asset > Inventory (write-down)	5	5

Property, plant & equipment

- Property, Plant & Equipment (PPE) represent land, buildings, and machinery used in the manufacture of the company's services and products plus all costs (transportation, installation, other) necessary to prepare those fixed assets for their service.

PP&E cycles out of the B/S and into the I/S as depreciation, either in COGS, SG&A or elsewhere

- Recall that depreciation is the systematic allocation of the cost of fixed assets over their estimated useful lives; PP&E represent those fixed assets.
- Suppose a company purchases a \$500 machine with a 5 year useful life. Assuming straight-line depreciation, depreciation expense after a full year is \$100. The effect on the balance sheet (a decrease in PP&E) can be illustrated through credits and debits:

	At purchase		After a year	
	Debits	Credits	Debits	Credits
Asset > PP&E	500			
Asset > Cash		500	100	100

New purchases of PP&E are called **capital expenditures**

Property, plant & equipment

- PP&E is reported *net of accumulated depreciation* on the balance sheet, such that:

$$\text{Net PP\&E} = \text{Gross PP\&E} - \text{accumulated depreciation}$$

Accumulated depreciation

- Netted away from gross PP&E to arrive at net PP&E on the balance sheet.
- Using the prior example, Net PP&E by year 3 will be \$200, comprised of \$500 in gross PP&E and \$300 in accumulated depreciation.
 - Accumulated depreciation is a contra account, which is an offsetting account to an asset (contra accounts also exist for liabilities and shareholders' equity).
 - Increases in a contra account reduce the associated asset account
 - Accumulated depreciation offsets Gross PP&E account, and the 2 accounts are aggregated together on the balance sheet as Net PP&E.

Property, plant & equipment

- Below is Walmart's description of what is included in their PP&E



(Amounts in millions except per share data)	2012	2011
ASSETS		
<i>Current assets:</i>		
Cash and cash equivalents	\$ 6,550	\$ 7,395
Receivables, net	5,937	5,089
Inventories	40,714	36,437
Prepaid expenses and other	1,685	2,960
Current assets of discontinued operations	89	131
Total current assets	54,975	52,012
<i>Property and equipment:</i>		
Property and equipment	155,002	148,584
Less accumulated depreciation	(45,399)	(43,486)
Property and equipment, net	109,603	105,098

Property and Equipment

Property and equipment are stated at cost. Gains or losses on disposition are recognized as earned or incurred. Costs of major improvements are capitalized, while costs of normal repairs and maintenance are charged to expense as incurred. The following detail of property and equipment includes estimated useful lives which are generally used to depreciate the assets on a straight-line basis:

(Amounts in millions)	Estimated Useful Lives	As of January 31,	
		2012	2011
Land	N/A	\$ 23,499	\$ 24,386
Buildings and improvements	3–40 years	84,275	79,051
Fixtures and equipment	3–25 years	39,234	38,290
Transportation equipment	3–15 years	2,682	2,595
Construction in progress	N/A	5,312	4,262
Property and equipment		\$ 155,002	\$ 148,584
Accumulated depreciation		(45,399)	(43,486)
Property and equipment, net		\$ 109,603	\$ 105,098

Leasehold improvements are depreciated over the shorter of the estimated useful life of the asset or the remaining expected lease term. Depreciation expense, including amortization of property under capital leases, for fiscal 2012, 2011 and 2010 was \$8.1 billion, \$7.6 billion and \$7.2 billion, respectively. Interest costs capitalized on construction projects were \$60 million, \$63 million and \$85 million in fiscal 2012, 2011 and 2010, respectively.

Property, plant & equipment

- Revisiting our lemonade stand, please calculate PP&E at the end of 2014, 2015, and 2016 assuming:
 - 15k in new equipment with a useful life of 3 years will be purchased on Dec. 31, 2014
 - 15k in new equipment with a useful life of 3 years will be purchased on Dec. 31, 2015
 - 15k in new equipment with a useful life of 3 years will be purchased on Dec. 31, 2016

January 1, 2014	December 31, 2014	December 31, 2015	December 31, 2016
Gross PP&E 32.0	Gross PP&E 47.0	Gross PP&E 62.0	Gross PP&E 77.0
Acc. Depr. 0.0	Acc. Depr. (10.4)	Acc. Depr. (25.8)	Acc. Depr. (46.2)
Net PP&E 32.0	Net PP&E 36.6	Net PP&E 36.2	Net PP&E 30.8

At Time of Purchase
No Depreciation Yet
Gross PP&E = Net PP&E

Depreciation (I/S): \$10.4

Depreciation (I/S): \$15.4

Depreciation (I/S): \$20.4

Property, plant & equipment – write downs & selling assets

Write downs

- Just like inventory, PP&E whose value declines needs to be written down to market value.
- The loss must be recognized immediately on the income statement. The loss can be presented in COGS, SG&A, ‘Other operating (or non operating) expenses’ or – if it is a big write down, as a separate line item.

Asset sales

- If a company chooses to sell some of their PP&E, the associated gross PP&E balance (and accumulated depreciation) is removed from the balance sheet, offset by:
 - The cash received, and (when applicable):
 - Any gain/loss on sale on the income statement

Property, plant & equipment – gains on sale

- When a company sells assets, if it receives more than the net book value it recognizes on the B/S at the time of sale, a gain is recorded on the I/S – usually as “other” operating or non operating income, or within the expense category through which the asset was being depreciated (COGS or SG&A).
- For example, in our lemonade stand example, the lemon squeezer has a net book value of \$10 at the end of 2014, comprised of the original purchase price (gross PP&E) of \$15k, less accumulated depreciation of \$5k.
- If on January 1, 2015 we sell the squeezer for \$12k, the journal entries would be as follows:

During 2014

	Debits	Credits
Asset > PP&E (original purchase)	15	
Equity > RE (depreciation)	5	
Asset > Cash		15
Asset > PP&E (depreciation)		5

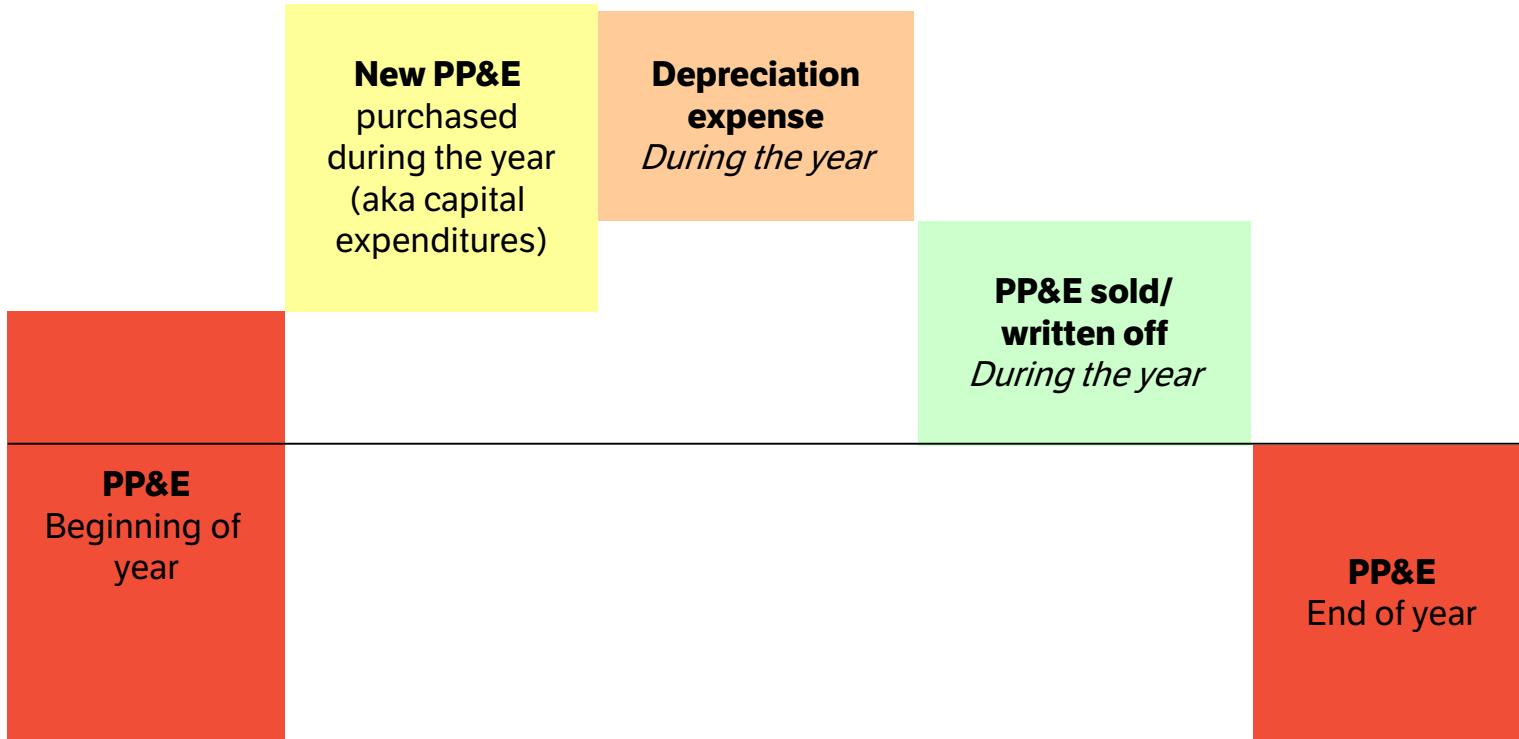
At sale – 1/1/2015

	Debits	Credits
Asset > Cash	12	
Equity > RE (gain on sale)		2
Asset > PP&E (sale)		10

- The key takeaway is that regardless of the sale price, only the net book value is removed from the PP&E line, and any excess gain (loss) is recognized in the I/S.

Property, plant & equipment

This is what happens visually to a company's PP&E balance during the year:



Property, plant & equipment – exercise

A company has PP&E of \$4,000 in January 1, 2014

- It records depreciation of \$800 during 2014
- It buys 1 new machine for \$500 during 2014
- It sells 1 old machine for \$200, with net book value of \$100 during 2014

Calculate PP&E at December 31, 2014

Property, plant & equipment – exercise

Beginning PP&E = \$4,000

- Plus: Capital expenditures: \$500
- Less: Depreciation: \$800
- Less: Asset sales: \$100

Ending PP&E: \$3,600

Intangible assets

- Intangible assets are comprised of non-physical acquired assets
- These intangible assets are items that have value based on the rights belonging to that company.

Intangible assets are linked to amortization on the income statement

- Recall that amortization is the systematic allocation of intangible assets over an estimated useful life.
- Intangible assets are reduced on the balance sheet via amortization on the income statement.

Types of intangible assets

- Customer Lists
- Franchises, Memberships, Licenses
- Patents and Technology
- Trademarks and goodwill are considered to have indefinite useful life so they are not amortized¹

1. Most companies ascribe an indefinite useful life to their trademarks; if a trademark is expected to have a definite life, it should be amortized.
2. In 2014, FASB changed its rules to allow (but not require) amortization of goodwill for private companies.

Intangible assets

- Let's revisit Google's 10K:



	As of December 31, 2012	As of December 31, 2013
Prepaid revenue share, expenses and other assets, non-current	2,011	1,976
Non-marketable equity investments	1,469	1,976
Property and equipment, net	11,854	16,524
Intangible assets, net	7,473	6,066
Goodwill	10,537	11,492
Total assets	<u>\$ 93,798</u>	<u>\$ 110,920</u>

Note 7. Goodwill and Other Intangible Assets

	As of December 31, 2013		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Value
Patents and developed technology	\$ 7,282	\$ 2,102	\$ 5,180
Customer relationships	1,770	1,067	703
Trade names and other	534	351	183
Total	<u>\$ 9,586</u>	<u>\$ 3,520</u>	<u>\$ 6,066</u>

Patents and developed technology, customer relationships, and trade names and other have weighted-average useful lives from the date of purchase of 8.1 years, 6.5 years, and 5.3 years. Amortization expense of acquisition-related intangible assets for the years ended December 31, 2011, 2012, and 2013 was \$441 million, \$884 million, and \$1,158 million.

As of December 31, 2013, expected amortization expense for acquisition-related intangible assets for each of the next five years and thereafter was as follows (in millions):

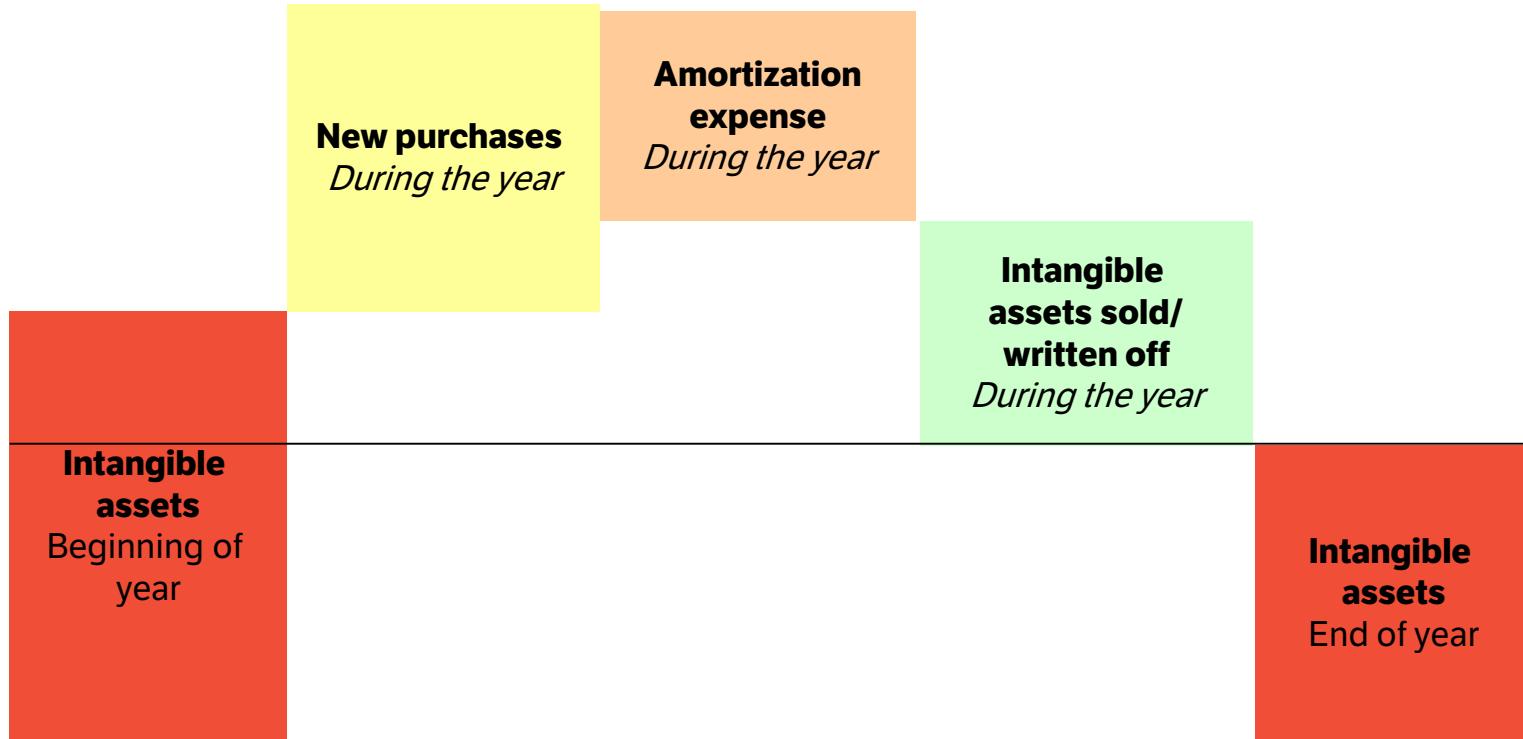
2014	\$ 1,093
2015	934
2016	844
2017	781
2018	734
Thereafter	1,680
	<u>\$ 6,066</u>

Google's intangibles

- As you might expect, intangible assets represent a significant component of Google's B/S.
- The company identifies the intangible asset balance on the B/S as well as a footnote disclosure specifying exactly how much amortization expense was recognized on the I/S during the year

Intangible assets

This is what happens visually to a company's intangible asset balance during the year:



Goodwill

- For companies that acquire a lot, goodwill is a sizeable asset on the B/S
- Goodwill is the amount by which the purchase price for a company exceeds its fair market value (FMV), representing the “intangible” value stemming from the acquired company’s business name, customer relations, employee morale.
- Goodwill is effectively an accounting plug, created only if the purchase price exceeds the FMV of all the assets acquired.

Big-Time acquires Johnny's Interiors

- The fair market value of a local New York furniture company, Johnny's Interiors, is determined to be \$5 million in 2014.
- A national furniture company, Big-Time Furniture, believes that under its proven management and expertise, Johnny's Interiors would be worth much more than the fair market value (FMV) implies and thus decides to acquire Johnny's Interiors for \$8 million, \$3 million above the fair market value.
- The \$3 million Big-Time paid above the FMV is recorded as goodwill on its balance sheet.

Goodwill impairment

- Unlike finite life intangible assets, Goodwill is not amortized, but is tested annually for loss of value (impairment).
- If the value of the previously acquired company declines, goodwill is reduced, with a corresponding reduction to RE via the income statement, by the amount of the impairment.
- Conceptually, goodwill write downs imply that a company overpaid in the original acquisition.

Big-Time acquires Johnny's Interiors

- Goodwill can only be written down, not up:
- Had Big-Time Furniture determined that Johnny's Interiors is worth more than the original purchase price, it cannot increase the amount of goodwill on its balance sheet, in-line with the conservatism principle.

Goodwill impairment



	December 31, 2013	December 31, 2012
Assets		
Current assets:		
Cash and cash equivalents	\$ 58,131	\$ 25,162
Receivables from clients, net	123,150	97,510
Unbilled services, net	55,125	47,232
Income tax receivable	270	192
Deferred income taxes, net	15,498	14,751
Prepaid expenses and other current assets	19,740	15,525
Total current assets	272,514	200,372
Property and equipment, net	38,742	33,805
Other non-current assets	16,485	15,322
Intangible assets, net	21,222	18,879
Goodwill	536,637	519,522
Total assets	\$ 885,600	\$ 787,900

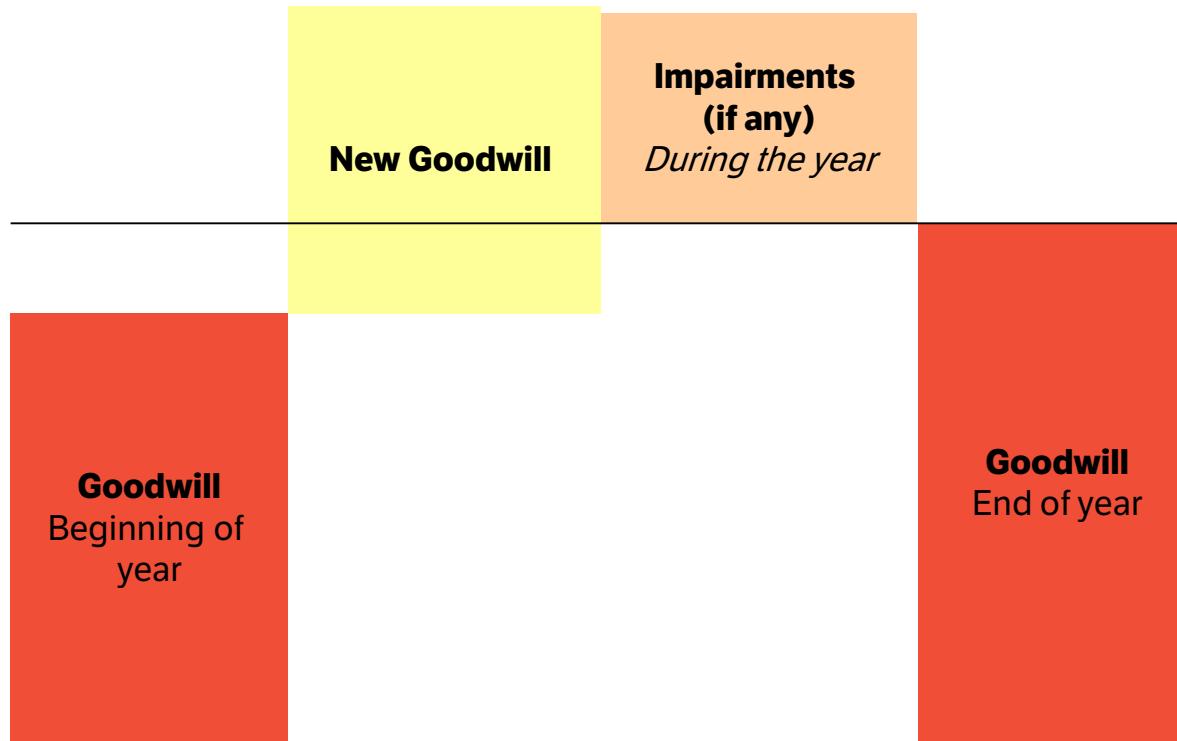
- Goodwill makes up the majority of Huron's assets, due to frequent acquisitions
- Some of these acquisitions have led to goodwill impairments, which you can see are reported on the I/S

	Year Ended December 31,		
	2013	2012	2011
Revenues and reimbursable expenses:			
Revenues	\$ 720,522	\$ 625,961	\$ 606,314
Reimbursable expenses	67,267	55,764	51,580
Total revenues and reimbursable expenses	787,789	681,725	657,894
Direct costs and reimbursable expenses (exclusive of depreciation and amortization shown in operating expenses):			
Direct costs	443,539	384,884	376,084
Amortization of intangible assets and software development costs	3,091	3,809	5,364
Reimbursable expenses	67,320	55,772	51,673
Total direct costs and reimbursable expenses	513,950	444,465	433,121
Operating expenses and other operating gains:			
Selling, general and administrative expenses	138,538	125,266	119,325
Restructuring charges	761	4,004	3,829
Restatement related expenses	—	1,785	4,579
Litigation and other settlement (gains) losses	(5,875)	1,150	1,096
Depreciation and amortization	20,510	18,529	18,524
Goodwill impairment charge	—	13,083	21,973
Total operating expenses and other operating gains	153,934	163,817	169,326
Operating income	119,905	73,443	55,447

In the third quarters of 2012 and 2011, the Company recorded non-cash goodwill impairment charges of \$13.1 million and \$22.0 million, respectively, related to our Huron Financial segment. See Note 4 "Goodwill and Intangible Assets" for information regarding our 2012 and 2011 goodwill impairment charges.

Goodwill

This is what happens visually to a company's Goodwill balance during the year:



Liabilities

- Liabilities represent the company's obligations to others that will be met through the use of cash, goods, or services.
 - To qualify as a liability, an obligation must be measurable and its occurrence probable
 - The transactions from which these obligations arise have taken place.
- Divided into 2 categories:
- **Current liabilities:** Due within 1 year
 - Reported in order of maturity, by amount, or in the event of liquidation
- **Long-term liabilities:** Not due within a year

Accounts payable (A/P)

- A/P is a current liability representing amounts owed by the company to suppliers for prior purchases or services.
- Going back to our lemonade stand, suppose you purchased \$7k of the lemons from a fruit supplier on credit, promising to pay him back in a month. Here is the impact on the financial statements:

	Debits	Credits
Asset > Inventory	7	
Liability > A/P		7

- Note that no cash was used in the purchase of this inventory

LIABILITIES AND EQUITY

Current liabilities:



Short-term borrowings	\$ 4,047	\$ 1,031
Accounts payable	36,608	33,676
Accrued liabilities	18,154	18,701
Accrued income taxes	1,164	157
Long-term debt due within one year	1,975	4,655
Obligations under capital leases due within one year	326	336
Current liabilities of discontinued operations	26	47
Total current liabilities	62,300	58,603
Long-term debt	44,070	40,692
Long-term obligations under capital leases	3,009	3,150
Deferred income taxes and other	7,862	6,682
Redeemable noncontrolling interest	404	408

Accrued expenses

- Accrued expenses are expenses that have already been incurred but not yet paid.
- Typical expenses that accrue include a variety of things like wages, insurance, rents, taxes, dividends, litigation costs that have already been incurred but not yet paid. Here is a description of the expenses that accrued for Walmart in 2013:



LIABILITIES AND EQUITY

Current liabilities:

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Accounts payable	36,608	33,676
Accrued liabilities	18,154	18,701
Accrued income taxes	1,164	157
Long-term debt due within one year	1,975	4,655
Obligations under capital leases due within one year	326	336
Current liabilities of discontinued operations	26	47
Total current liabilities	62,300	58,603

Note 6. Accrued Liabilities

The Company's accrued liabilities consist of the following:

(Amounts in millions)	As of January 31,	
	2012	2011
Accrued wages and benefits ⁽¹⁾	\$ 5,089	\$ 5,895
Self-insurance ⁽²⁾	3,638	3,447
Other ⁽³⁾	9,427	9,359
Total accrued liabilities	\$18,154	\$18,701

⁽¹⁾ Accrued wages and benefits include accrued wages, salaries, vacation, bonuses and other incentive plans.

⁽²⁾ Self-insurance consists of all insurance-related liabilities, such as workers' compensation, general liability, vehicle liability, property and employee-related health care benefits.

⁽³⁾ Other accrued liabilities consist of various items such as accrued taxes, maintenance, utilities, advertising and interest.

Concept checker

- A company must recognize expenses on the I/S when the resources provided by those expenses were provided, not when the expense is due.
- For example, a year end bonus is recognized on the I/S throughout the year, even though the bonus is issued at year-end

Accrued expenses

- Going back to our lemonade stand, suppose you didn't actually pay the \$12.6k in taxes that you owe, but were planning to pay it on April 15 2015 (next year). In addition, let's say that of the \$15k in salary owed to the cashier, you paid \$13k, but you hadn't come around to paying the remaining \$2k and were planning on paying it in January of 2015.
- The impact on the financial statements would be:

	Debits	Credits
Assets > Cash		
Equity > RE (SG&A)		
Equity > RE (Taxes)		
Liability > Accrued expenses		



LIABILITIES AND EQUITY		
<i>Current liabilities:</i>		
Short-term borrowings	\$ 4,047	\$ 1,031
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Deferred income taxes and other	7,862	6,682
Redeemable noncontrolling interest	404	408

	Debits	Credits
Assets > Cash		
Equity > RE (SG&A)		13
Equity > RE (Taxes)	15	
Liability > Accrued expenses	12.6	
		14.6

Deferred (unearned) revenue

- Revenue received for services not yet provided by the company. This is a sizeable liability for software companies, as well as companies that sell long term memberships like magazine subscriptions and gift certificates.
- Deferred revenue is a **current liability** if the revenue is expected to be recognized within the year, otherwise, it is a **long term liability**.
- Suppose your lemonade stand offered a gift card letting customers prepay for 10 cups of lemonade at a discount and that you sold \$3k such contracts during the year, of which \$1k were immediately redeemed for lemonade. What are the journal entries?

	Debits	Credits
Asset > Cash	3	
Liability > Deferred revenue		2
Equity > RE (Revenue)		1

Revisiting Apple's bundled products

- Recall that Apple sells their iPhone for \$499 and estimates the standalone selling price for the unspecified software upgrade rights implicit when a customer buys an iPhone to be \$25
- Apple immediately recognizes the remainder of the sales price (\$499-\$25) as revenue
- Apple defers the remaining \$25, recognizes it as a deferred revenue liability, which gets reduced over several years, with a corresponding increase in revenue.

Deferred (unearned) revenue



LIABILITIES AND SHAREHOLDERS' EQUITY:			
Current liabilities:			
Accounts payable	\$ 22,367	\$ 21,175	
Accrued expenses	13,856	11,414	
Deferred revenue	7,435	5,953	
Total current liabilities	43,658	38,542	
Deferred revenue – non-current	2,625	2,648	
Long-term debt	16,960	0	
Other non-current liabilities	20,208	16,664	
Total liabilities	83,451	57,854	

The Company records deferred revenue when it receives payments in advance of the delivery of products or the performance of services. This includes amounts that have been deferred for unspecified and specified software upgrade rights and non-software services that are attached to hardware and software products. The Company sells gift cards redeemable at its retail and online stores, and also sells gift cards redeemable on the iTunes Store for the purchase of digital content and software. The Company records deferred revenue upon the sale of the card, which is relieved upon redemption of the card by the customer. Revenue from AppleCare service and support contracts is deferred and recognized over the service coverage periods. AppleCare service and support contracts typically include extended phone support, repair services, web-based support resources and diagnostic tools offered under the Company's standard limited warranty.

Short-term debt

- There are two types of debt obligations that appear as ‘current liabilities’
 - Short-term debt:** owed by the company that are due within 1 year
 - Current portion of long-term debt:** Portion of long-term debt which is due within 1 year

WAL-MART STORES, INC.
Consolidated Balance Sheets

As of January 31,
2012 2011

LIABILITIES AND EQUITY		
<i>Current liabilities:</i>		
Short-term borrowings	\$ 4,047	\$ 1,031
Accounts payable	36,608	33,676
Accrued liabilities	18,154	18,701
Accrued income taxes	1,164	157
Long-term debt due within one year	1,975	4,655
Obligations under capital leases due within one year	326	336
Current liabilities of discontinued operations	26	47
Total current liabilities	<u>62,300</u>	<u>58,603</u>

Long term debt

- Long-term debt is a long-term liability and is often a sizeable liability
- Suppose you borrowed an additional \$100 for your lemonade stand from the bank, which you will need to pay back in 10 years. In the meantime, you must make annual interest payments at a rate of 10%. Here is the impact of the original debt issuance:

	Debits	Credits
Asset > Cash Liability > Long term debt	100	100

- After the first year, you must make your first interest payment. Here is the impact on the financial statements:

	Debits	Credits
Equity > RE (Interest expense) Asset > Cash	10	10

Leases

- Many companies make lease payments for their equipment, office space and retail locations.
- Lease payments are defined contractually upfront between the **lessee** (the company making lease payments) and the **lessor** (the company collecting lease payments).
 - **Under IFRS**, virtually all leases with a few exceptions are accounted for as **finance leases**
 - **Under US GAAP**, leases can be accounted for as **operating leases** or **finance leases**

Finance lease vs operating lease classification

Under US GAAP (ASC 842), a lease is a finance lease if any of these criteria are met (otherwise operating):

- Does ownership of the asset transfer to the lessee by end of lease term?
- Lessor grants lessee an option to purchase the assets that the lessee is reasonably certain to exercise
- Lease term is for major part of asset's remaining economic life
- PV of lease payments is substantially all the asset's fair value
- Asset is so specialized that it is expected to have no alternative use to lessor

Finance leases

- Finance leases is an accounting approach that recognizes the **lease as debt** and the underlying **asset as PP&E** on the lessee's balance sheet
- **Lease as debt:** Like debt, leases are long term obligations to make payments to another party. Unlike debt, lease payments don't usually include explicit interest payments; Instead, the interest fees are implied and baked into the total lease expense.
- **Initial balance sheet impact:** Finance leases initially are recognized as a liability on the B/S (just like debt) with the corresponding asset as PP&E¹.
 - Unlike debt, where the principal is defined, companies have to estimate the initial liability as the present value of all future lease payment, using a discount rate assumption.
 - For example, a 4 year lease, with \$500,000 annual year-end lease payments at an assumed discount rate of 10% will be recognized as follows (see next page)

¹Although beyond the scope of this course, there are several scenarios in which the initial PP&E recognized will not equal the initial liability. Things like lease prepayments and lease commencement payments often create a slight difference between the lease asset and lease liability. For more on this, check out Wall Street Prep's Advanced Accounting Course.

Finance leases

Calculating the lease liability & asset

Discount rate assumption: 10%

Period	Annual lease payment	PV of each lease payment
1	500,000	454,545
2	500,000	413,223
3	500,000	375,657
4	500,000	341,507
Initial lease recognized		1,584,933
Initial PP&E recognized		<u>1,584,933</u>

	Debits	Credits
Asset > PP&E Liability > Lease	1.584933	1.584933

Finance leases

- Over the life of the lease:** Conceptually, the asset is depreciated (the term amortized is used interchangeably with leases) over its useful life (or lease term, if shorter), while the lease liability accrues interest during the year and is then reduced by lease payments (like principal payments with debt). On the income statement both depreciation expense and an implied interest expense reduces net income
- Continuing with our examples, the journal entries over the lease term would be:

	Debits	Credits
Liability > Lease payment Cash > Lease	0.500	0.500

	Debits	Credits
RE > Depreciation Asset > PP&E	0.396	0.396

Depreciation expense is calculated on a straight line basis as the asset value divided by the term of the lease. In our example, that's $1.585 / 4$ years = 0.396 annual depreciation.

	Debits	Credits
RE > Interest expense Liability > Interest expense	0.158	0.158

Interest expense is calculated as the discount rate x the lease liability balance. In our example, in year 1 that's $1.585 \times 10\% = 0.158$

Depreciation and interest together make up the income statement impact of finance leases

Finance leases

- **Bottom line:** With finance leases, the B/S initially treats the lease as a debt-like liability and the underlying asset as an owned asset. Over the life of the lease, the income statement impact does not capture the rent (as one might intuitively assume), instead, finance lease accounting wants us to break up the lease payments into two components: interest and depreciation fees - even though you're in actuality paying a lease payment that commingles these two things
- Compared to the lease expense, the overall depreciation + interest expense **will be higher early in the lease and lower later in the lease** – because the interest expense is higher when the “principal” (i.e. lease liability) is high)

Operating leases

- US GAAP allows a slightly different accounting treatment to leases that qualify
 - Operating lease accounting is supposed to apply to leases where the lessee really doesn't have economic ownership of the lease
- **Initial balance sheet impact:** Same as finance leases: Initially are recognized as a liability on the B/S (just like debt) with the corresponding asset as PP&E
- **Income statement impact over lease term:** The income statement is simply reduced by the rent ("lease") expense.
 - For example, if a 5-year lease calls for the annual lease payment of \$500,000, the annual rent expense recognized on the I/S will simply be \$500,000 per year
- **Straight-line lease:** If lease payments grow each year, the I/S will recognize an annual straight line expense. For example, if a 2-year lease calls for \$1 million in lease payments in year 1 and \$1.2 million in year 2, the I/S will recognize an annual lease payment of \$1.1 million, creating a disconnect between the cash outlay and accrued expense recognized.

Operating leases

- The lease liability is treated identically under operating and finance lease accounting
- The lease asset is reduced by depreciation expense but the calculation is different – the depreciation is calculated as the rent expense, net of the interest expense
- Continuing with our finance lease example, below are journal entries had it been accounted for as an operating lease:

	Debits	Credits
Liability > Lease payment Cash > Lease	0.500	0.500

The lease payment impacts finance and operating leases the same way

	Debits	Credits
RE > Rent expense Asset > PP&E Depreciation	0.500	0.500

The only I/S impact in operating leases is the rent expense (which in our simple example exactly equals the lease payment)

	Debits	Credits
Asset > PP&E Depreciation Liability > Interest expense	0.158	0.158

Notice how in operating leases, depreciation expense and interest expense do not directly impact the I/S

Unlike finance leases, which simply calculate depreciation on a straight line basis, depreciation for operating leases is calculated as the rent expense, net of the interest expense

Crash Course in Accounting & Financial Statement Analysis > Balance Sheet

Source: Microsoft Q2 Fiscal 2019
10Q
(Microsoft reports June Fiscal Year)

Operating leases Asset
recognized on
B/S as a “right-of-use” asset

Corresponding to
the ROU asset is
an operating
lease liability and
has both a
current and long
term portion.

	BALANCE SHEETS	
	December 31, 2018	June 30, 2018
Assets		
Current assets:		
Cash and cash equivalents	\$ 6,638	\$ 11,946
Short-term investments	121,024	121,822
Total cash, cash equivalents, and short-term investments	127,662	133,768
Accounts receivable, net of allowance for doubtful accounts of \$354 and \$377	19,680	26,481
Inventories	1,961	2,662
Other	7,571	6,751
Total current assets	156,874	169,662
Property and equipment, net of accumulated depreciation of \$33,082 and \$29,223	32,717	29,460
Operating lease right-of-use assets	6,806	6,686
Equity investments	2,274	1,862
Goodwill	41,577	35,683
Intangible assets, net	8,482	8,053
Other long-term assets	10,129	7,442
Total assets	\$ 258,859	\$ 258,848
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	\$ 7,563	\$ 8,617
Current portion of long-term debt	3,516	3,998
Accrued compensation	4,624	6,103
Short-term income taxes	2,033	2,121
Short-term unearned revenue	24,285	28,905
Other	8,297	8,744
Total current liabilities	50,318	58,488
Long-term debt	69,653	72,242
Long-term income taxes	29,161	30,265
Long-term unearned revenue	3,799	3,815
Deferred income taxes	2,062	541
Operating lease liabilities	5,683	5,568
Other long-term liabilities	6,055	5,211
Total liabilities	\$ 258,859	\$ 258,848
Commitments and contingencies		
Stockholders' equity:		
Common stock and paid-in capital – shares authorized 24,000		
Retained earnings		
Accumulated other comprehensive loss		
Total stockholders' equity	\$ 1,399	\$ 1,686
Total liabilities and stockholders' equity	\$ 5,568	\$ 5,211
Refer to accompanying notes.		

Supplemental balance sheet information related to leases was as follows:

	(In millions, except lease term and discount rate)	2018
June 30,		
Operating Leases		
Operating lease right-of-use assets	\$ 6,686	\$ 6,686
Other current liabilities	1,399	1,399
Operating lease liabilities	5,568	5,568
Total operating lease liabilities	\$ 6,967	\$ 6,967

Crash Course in Accounting & Financial Statement Analysis > Balance Sheet

Finance leases are also recognized as ROU assets (often within PP&E)

Finance leases also get a corresponding liability, which Microsoft classified within other current liabilities and long term liabilities

Inventories		1,901	4,004
Other		7,571	6,751
Total current assets		156,874	169,662
Property and equipment, net of accumulated depreciation of \$33,082 and \$29,223		32,717	29,460
Operating lease right-of-use assets		6,806	6,686
Equity investments		2,274	1,862
Goodwill		41,577	35,683
Intangible assets, net		8,482	8,053
Other long-term assets		10,129	7,442
Total assets	\$	258,859	\$ 258,848
Liabilities and stockholders' equity			
Current liabilities:			
Accounts payable	\$	7,563	8,617
Current portion of long-term debt		3,516	3,998
Accrued compensation		4,624	6,103
Short-term income taxes		2,033	2,121
Short-term unearned revenue		24,285	28,905
Other		8,297	8,744
Total current liabilities		50,318	58,488
Long-term debt		69,653	72,242
Long-term income taxes		29,161	30,265
Long-term unearned revenue		3,799	3,815
Deferred income taxes		2,062	541
Operating lease liabilities		5,687	5,568
Other long-term liabilities		6,055	5,211
Total liabilities		166,701	176,130
Commitments and contingencies			
Stockholders' equity:			
June 30,		2018	
Operating Leases			
Operating lease right-of-use assets	\$	6,686	
Other current liabilities	\$	1,399	
Operating lease liabilities		5,568	
Total operating lease liabilities		6,967	
Finance Leases			
Property and equipment, gross	\$	4,543	
Accumulated depreciation		(404)	
Property and equipment, net	\$	4,139	
Other current liabilities	\$	176	
Other long-term liabilities		4,125	
Total finance lease liabilities		4,301	

Equity

- Like debt, equity represents another major source of funds via:
 - Preferred stock issuance
 - Equity investment (net of share repurchases “treasury stock”)
 - Retained earnings (what the company has earned through operations since its inception)

Equity	Description
Preferred Stock	Stock that has special rights and takes priority over common stock.
Common stock	Represents capital received by a company when it issues shares.
Treasury Stock	Common stock that had been issued and then reacquired (bought back) by a company.
Retained Earnings	Total company earnings / losses since its inception less all dividends.

Preferred stock

- When companies raise capital especially at early stages, investors often prefer (no pun intended) to contribute capital in the form of preferred stock instead of common stock.
- Preferred stock is a class of stock that takes priority over common stock and has special rights such as priority over dividends and claims on assets in bankruptcy.
- Preferred stock is often structured to include the possibility of conversion into common stock at a pre-set exchange rates, enabling investors to benefit from a set dividend, but participate in the upside if the company's common equity value increases.

Common stock (and additional paid in capital)

- Aside from debt, the primary way companies can raise money (for growth, acquisitions, etc.) is through the sale (issuance) of common stock (equity).
- Because of an old convention, the accounting for common stock involves splitting the value of a share of common stock into two components:
 - Common stock par value: Represents some nominal value to an issued share (\$0.10/share)
 - Additional paid in capital: Represents the excess value of the share issued over par value
- For example, when Google went public, it received \$85 per share offered. Each share had a par value of \$0.01. The journal entries for one share issuance are:

	Debits	Credits
Asset > Cash	85.00	
Equity > Common stock, par value		.01
Equity > Common stock, APIC		84.99

- Google cannot write up the value of its common equity from the \$85 to reflect the much higher current share price (historical cost principle).
- As a result, common stock on the B/S of most companies grossly understates the true market value of their equity.

Common stock (and additional paid in capital)

- In addition to equity issuances, equity issued to employees through stock based compensation (such as stock options and restricted stock) also increases the common stock & APIC balance
- As the company recognizes stock based compensation on the I/S, it will recognize a corresponding increase in the common stock & APIC balance
- For example, a company that recognizes \$5 million in stock based compensation expense will have the following journal entries (consolidating the CS & APIC lines for simplicity):

	Debits	Credits
Equity > Retained earning	5.00	
Equity > Common Stock & APIC		5.00

- Notice that there is no cash impact!

Treasury stock

- Shares once issued but subsequently repurchased by the company are called treasury stock.
- Companies repurchase stock for reasons including boosting EPS (repurchase of shares reduces total shares outstanding) or to change the company's capital structure (more debt/less equity).
- When a company repurchases shares, it either goes into the open market and buys them at the current share price, or through negotiation with specific shareholders.
- Treasury stock is a contra equity account to capture the value of common stock that was once issued but then repurchased by the company.
- Below we lay out journal entries for Colgate using \$1 billion to buy back 20m at \$50 per share.

	Debits	Credits
Equity > Treasury stock Asset > Cash	\$1b	\$1b

Treasury stock impact on share count

- Basic shares outstanding are reduced when a company repurchases shares
- Basic shares outstanding = Total shares issued less shares repurchased (treasury stock)

Common stock & treasury stock representation on the financial statements

- An interesting thing to observe for companies engaged in a lot of treasury stock repurchases, is that treasury stock is sometimes an even larger amount on the B/S than common stock & APIC.
- How could the value of the shares the company has repurchased be greater than the value of all of the company's outstanding shares?
 - The answer gets back to the fact that common stock & APIC cannot be written up

Example: Google repurchases shares

- Imagine Google goes public and issues 100 million shares at \$85 per share. Prior to going public, the book value of the common stock & APIC was \$1.5 billion.
- 5 years later Google shares are trading at \$1,500. Google decides to buy back 20 million shares. What is the balance of common stock & APIC and treasury stock respectively?

Balance sheet before share repurchase	
Common stock & APIC	?
Treasury stock	0.0

Balance sheet after share repurchase	
Common stock & APIC	?
Treasury stock	?

Common stock & treasury stock representation on the financial statements

Balance sheet before share repurchase	
Common stock & APIC	\$10 billion
Treasury stock	0

Balance sheet after share repurchase	
Common stock & APIC	\$10 billion
Treasury stock	(\$30 billion)

- We see this with Procter & Gamble: treasury stock is greater than the common stock & APIC balance:



	2013	2012
SHAREHOLDERS' EQUITY		
Convertible Class A preferred stock, stated value \$1 per share (600 shares authorized)	1,137	1,195
Non-Voting Class B preferred stock, stated value \$1 per share (200 shares authorized)	—	—
Common stock, stated value \$1 per share (10,000 shares authorized; shares issued: 2013 - 4,009.2, 2012- 4,008.4)	4,009	4,008
Additional paid-in capital	63,538	63,181
Reserve for ESOP debt retirement	(1,352)	(1,357)
Accumulated other comprehensive income/(loss)	(7,499)	(9,333)
Treasury stock, at cost (shares held: 2013 - 1,266.9, 2012 - 1,260.4)	(71,966)	(69,604)
Retained earnings	80,197	75,349
Noncontrolling interest	645	596
TOTAL SHAREHOLDERS' EQUITY	68,709	64,035
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	\$ 139,263	\$ 132,244

Retained earnings

- Retained earnings represent cumulative earnings (net of dividends) over a company's entire existence.
- As a reminder, the I/S is connected to the B/S through RE:
 - **All income** on the I/S increases retained earnings on the balance sheet (credits)
 - **All expenses** on the I/S decrease retained earnings (debits)
- In addition, **all common and preferred dividends** decrease retained earnings (debits)
- Conceptually, retained earnings represents the cumulative earnings that have been “retained” by the business, after taking into account all the dividend payments ever made

Retained Earnings =
 $(\text{Net Income} - \text{Dividends})_1$
 $+ (\text{Net Income} - \text{Dividends})_2$
 $+ (\text{Net Income} - \text{Dividends})_3$
 $+ \dots$
 $+ (\text{Net Income} - \text{Dividends})_t$



Other comprehensive income (OCI)

- OCI is an equity line item on the B/S that captures the accumulation of income or loss that a company has recognized over time that is not recognized directly on the I/S and thus not captured in retained earnings.
- OCI includes gains and losses from foreign currency translations, unrealized gains and losses on available for sale securities, etc.
- Example: A company reports 2014 net income (assume all cash for simplicity) of \$5m. In addition, the company reported a foreign currency gain of \$3 million (assume all cash for simplicity). Please record the journal entries:

	Debits	Credits
Asset > Cash	\$8m	
Equity > Retained earnings		\$5m
Equity > Other comprehensive income		\$3m

Other comprehensive income (OCI)



CONSOLIDATED BALANCE SHEETS
 (In millions, except number of shares which are reflected in thousands)

	<u>September 28, 2013</u>	<u>September 29, 2012</u>
Shareholders' equity:		
Common stock, no par value; 1,800,000 shares authorized; 899,213 and 939,208 shares issued and outstanding, respectively	19,764	16,422
Retained earnings	104,256	101,289
Accumulated other comprehensive income/(loss)	<u>(471)</u>	<u>499</u>
Total shareholders' equity	123,549	118,210
Total liabilities and shareholders' equity	<u>\$ 207,000</u>	<u>\$ 176,064</u>

OCI is presented on the B/S. Notice the year over year change on the B/S is \$970...

Other comprehensive income (OCI)



CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(In millions)

	Years ended		
	September 28, 2013	September 29, 2012	September 24, 2011
Net income	\$ 37,037	\$ 41,733	\$ 25,922
Other comprehensive income/(loss):			
Change in foreign currency translation, net of tax effects of \$35, \$13 and \$18, respectively	(112)	(15)	(12)
Change in unrecognized gains/losses on derivative instruments:			
Change in fair value of derivatives, net of tax benefit/(expense) of \$(351), \$73 and \$(50), respectively	522	(131)	92
Adjustment for net losses/(gains) realized and included in net income, net of tax expense/(benefit) of \$255, \$220 and \$(250), respectively	(458)	(399)	450
Total change in unrecognized gains/losses on derivative instruments, net of tax	64	(530)	542
Change in unrealized gains/losses on marketable securities:			
Change in fair value of marketable securities, net of tax benefit/(expense) of \$458, \$(421) and \$17, respectively	(791)	715	29
Adjustment for net losses/(gains) realized and included in net income, net of tax expense/(benefit) of \$82, \$68 and \$(40), respectively	(131)	(114)	(70)
Total change in unrealized gains/losses on marketable securities, net of tax	(922)	601	(41)
Total other comprehensive income/(loss)	(970)	56	489
Total comprehensive income	\$ 36,067	\$ 41,789	\$ 26,411

OCI
Which is the
OCI reported
in 2013

- While the B/S represents the accumulated gains or losses of OCI, a full breakout of gains and losses categorized as OCI are often reported in a separate financial statement called ‘Statement of Comprehensive Income’ (this is similar to how the I/S is a breakout of income categorized as “retained earnings”)

The lemonade stand exercise III – business is booming

1	During 2015, you sold \$210k in lemonade at \$1 per cup. You have still not collected \$20k of this by year end. You also create a gift card, which generated \$60k. By year end, half the gift cards were redeemed. The gift cards expire on December 31, 2016.
2	On January 1, 2015, the original lemon squeezer broke down unexpectedly and you threw it away. You decided to classify the write down as a “Non-operating expense” on the I/S. The same day, you buy a replacement for \$15k with a useful life of 3 years (use straight-line depreciation). Assume all equipment purchased in 2014 depreciates the same way as in 2014.
3	On January 1, 2015 you buy a customer list from Jamba Juice next door for \$10k and spend \$1k to print and mail leaflets to them promoting your lemonade stand. You estimate the list has a useful life of 5 years.
4	On January 1, 2015, you buy \$60k worth of lemons and paper cups (just enough to make 300k cups of lemonade) with cash. On December 15, 2015, you buy an additional \$10k (enough to make 50k cups) but you didn't pay cash yet - the invoice is due January 5, 2016. <i>Assume FIFO accounting.</i>
5	You kept your lemonade mixer and cashier, and paid them each \$15k for the year.
6	Tax rate for the lemonade stand business is 40%.
7	You started the year with 9,000 shares outstanding. On June 30, 2015 you repurchased 1,000 shares from the investor for \$50k.
8	Interest expense was \$5k; interest income was \$3k. On 7/15/2015, you issued a \$5/share dividend.
	The accounting period ends on 12/31/15.
	<p>Create a B/S for year-end 2015 and an I/S for 2015</p> <p><i>Use the fact pattern above and the opening B/S provided on the next page.</i></p>

The lemonade stand exercise III – business is booming

B/S as of 12/31/14

Cash	227.4
A/R	0.0
Inventories	0.0
PP&E	21.6
Intangibles	0.0
Total assets	249.0
A/P	0.0
Deferred revenue	0.0
Debt	50.0
Total liabilities	50.0
Common stock	180.0
R/E	19.0
Total equity	199.0

<i>\$ in thousands, except per share data</i>	<i>Jan. 1 – Dec. 31, 2015</i>
Revenue	
Cost of Goods Sold	
SG&A	
Operating income (EBIT)	
Interest expense, net	
Non-operating income / (expenses)	
Pretax income	
Less: Tax expense	
Net income	
Basic shares (weighted avg.)	
EPS	
EBITDA	

B/S as of 12/31/15

Cash	
A/R	
Inventories	
PP&E	
Intangibles	
Total assets	
A/P	
Deferred revenue	
Debt	
Total liabilities	
Common stock	
R/E	
Total equity	

The lemonade stand exercise III – business is booming

B/S as of 12/31/14

Cash	227.4
A/R	0.0
Inventories	0.0
PP&E	21.6
Intangibles	0.0
Total assets	249.0
A/P	0.0
Deferred revenue	0.0
Debt	50.0
Total liabilities	50.0
Common stock	180.0
R/E	19.0
Total equity	199.0

<i>\$ in thousands, except per share data</i>	<i>Jan. 1 – Dec. 31, 2015</i>
Revenue	240.0
Cost of Goods Sold	68.0
SG&A	23.4
Operating income (EBIT)	148.6
Interest expense, net	2.0
Non-operating income / (expenses)	(10.0)
Pretax income	136.6
Less: Tax expense	54.6
Net income	82.0
Basic shares (weighted avg.)	8,500.0
EPS	9.642
EBITDA	161.0

B/S as of 12/31/15

Cash	214.7
A/R	20.0
Inventories	22.0
PP&E	16.2
Intangibles	8.0
Total assets	280.9
A/P	10.0
Def. revenue	30.0
Debt	50.0
Total liabilities	90.0
Common stock	180.0
Treasury Stock	(50.0)
R/E	60.9
Total equity	190.9

Crash Course in Accounting & Financial Statement Analysis, Third Edition

Cash Flow Statement

7

The cash flow statement (CFS)

- While the I/S is very useful because it attempts to provide insight to a company's "true" profitability using accrual accounting which matches revenues with their corresponding expenses, it also requires management judgment (i.e. useful life, inventory cost , revenue recognition assumptions can have material impacts on profitability) and is thus not only potentially misleading about the company's liquidity, it is also prone to manipulation.
 - A company may show high profitability but running out of cash because significant revenues recognized were noncash
 - A company may show low or negative profitability but generating a ton of cash during the period because the major expense was noncash D&A.
- Along with the B/S and I/S, **the cash flow statement** (CFS) is a required financial statement that provides insight that the I/S cannot – namely, exactly how much cash a company generates and from what activities.
- The CFS reconciles net income to a company's actual change in cash balance over a period in time (quarter or year).
- That's why the CFS and I/S must both be used and fully understood by analysts

Structure of the cash flow statement

- Under both U.S. GAAP and IFRS, companies have two options for reporting cash flows:

1. Direct method
2. Indirect method - virtually all choose the indirect method

- Both approaches require cash flows to be classified into three components:

1. Cash from operations (CFO)

- How much cash did the company generate from operations during the period?
- Uses net income as a starting point and converts accrual-based net income into cash flow from operations via a series of adjustments (i.e., non-cash and accrual)

2. Cash from investing activities (CFI)

- Capital expenditures / asset sales and purchases

3. Cash from financing activities (CFF)

- New borrowing / pay-down of debt / new issuance of stock / share repurchases
- Issuance of dividends

Cash from operations

- While the I/S recognizes non-cash income (i.e. credit sales, write-ups) and expenses (i.e. D&A, credit purchases), on the CFS, these items are ignored.
- The starting point on the CFS is thus to start with net income and back all the noncash expenses and income out of net income, to get at “cash income” or “cash from operations”

The remaining line items are adjustments to remove noncash income / expense to get at “cash income” or “cash from operations”

Consolidated Statements of Earnings

	2013	2012	2011
NET SALES	\$ 84,167	\$ 83,680	\$ 81,104
Cost of products sold	42,428	42,391	39,859
Selling, general and administrative expense	26,950	26,421	25,750
Goodwill and indefinite-lived intangible asset impairment charges	308	1,576	—
OPERATING INCOME	14,481	13,292	15,495
Interest expense	667	769	831
Interest income	87	77	62
Other non-operating income, net	942	185	271
EARNINGS FROM CONTINUING OPERATIONS BEFORE INCOME TAXES	14,843	12,785	14,997
Income taxes on continuing operations	3,441	3,468	3,299
NET EARNINGS FROM CONTINUING OPERATIONS	11,402	9,317	11,698
NET EARNINGS FROM DISCONTINUED OPERATIONS	—	1,587	229
NET EARNINGS	11,402	10,904	11,927



Consolidated Statements of Cash Flows

	2013	2012	2011
CASH AND CASH EQUIVALENTS, BEGINNING OF YEAR	\$ 4,436	\$ 2,768	\$ 2,879
OPERATING ACTIVITIES			
Net earnings	11,402	10,904	11,927
Depreciation and amortization	2,982	3,204	2,838
Share-based compensation expense	346	377	414
Deferred income taxes	(307)	(65)	128
Gain on sale and purchase of businesses	(916)	(2,106)	(203)
Goodwill and indefinite-lived intangible asset impairment charges	308	1,576	—
Change in accounts receivable	(415)	(427)	(426)
Change in inventories	(225)	77	(501)
Change in accounts payable, accrued and other liabilities	1,253	(22)	358
Change in other operating assets and liabilities	68	(444)	(1,221)
Other	377	210	16
TOTAL OPERATING ACTIVITIES	14,873	13,284	13,330

CFO: Depreciation

- Often the biggest adjustment to get from net income to CFO is depreciation expense, because it is usually the largest noncash expense included within net income
- As you can see from P&G's CFS, depreciation is the largest adjustment for them
- In addition to depreciation, there are several common adjustments, which we will now address...



Consolidated Statements of Earnings

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CFO: Working capital

- The other major adjustment from net income to CFO is for a specific grouping of B/S line item: working capital
 - Current assets like A/R, inventories, prepaid expenses are called “working capital” assets
 - Current liabilities like A/P, accrued expenses, deferred revenue are called “working capital” liabilities
- Both represent assets and liabilities that are tied up in the ordinary course of operations, which is why we classify their cash impact under CFOs

Consolidated Statements of Cash Flows

P&G

<u>Amounts in millions; Years ended June 30</u>	2013	2012	2011
CASH AND CASH EQUIVALENTS, BEGINNING OF YEAR	\$ 4,436	\$ 2,768	\$ 2,879
OPERATING ACTIVITIES			
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CFO: Working capital

- The impact on the CFS of changes in working capital assets and liabilities is an example of a broader accounting concept we have been discussing:
 - **Increases in assets represent a usage of funds (cash outflow)**
 - Example: a company buys inventory with cash
 - **Increases in liabilities and equity represents a source of funds (cash inflow)**
 - Example: A company issues stock or debt and gets cash in return

CFO: Other items

- **Asset write downs / impairments:** Since write downs or asset impairments are recognized as an expense on the I/S, they represent a noncash expense that must be added back on the CFS within CFO.

Cash from operations (CFO)

- The easiest way to understand CFO is to remember that it answers the question “how much cash went into the company’s pocket as a result of operations?”

Simple Income Statement	
Cash revenues	100
Cash expenses	80
Net income	20
How much cash goes in my pocket?	•
Simple CFS	
Net income	
Cash from operations	↓

Net income would equal CFO if net income was only comprised of cash income and expenses

Cash from operations (CFO)

- The easiest way to understand CFO is to remember that it answers the question “how much cash went into the company’s pocket as a result of operations?”

Simple Income Statement	
Cash revenues	100
Cash expenses	80
D&A	10
Net income	10
How much cash goes in my pocket?	•
Simple CFS	
Net income	
D&A	
Cash from operations	↓

D&A must be added back to NI to arrive at cash

Cash from operations (CFO)

- The easiest way to understand CFO is to remember that it answers the question “how much cash went into the company’s pocket as a result of operations?”

Simple Income Statement

Revenues	100
Cash expenses	80
D&A	10
Net income	10
How much cash goes in my pocket?	•

\$92 in cash / \$8 credit sales

Accounts Receivable on B/S

Accounts receivable - BOP	7
Change in A/R during period	
Accounts receivable – EOP	

Simple CFS

Net income	
D&A	
- increase in A/R	
Cash from operations	↓

Let's generalize

- Increases in A/R, inventory, prepaid expenses, other current assets should be subtracted from net income to get to CFO
- Conversely, increases in A/P, accrued expenses, other current liabilities should be added to net income to get to CFO

Cash from operations (CFO)

Income Statement	
Revenues	100
Expenses	80
D&A	10
Net income	10
How much cash goes in my pocket?	
CFS	
Net income	
D&A	
- increase in A/R	
- Increase in inventory	
+ increase in A/P	
+ increase in Deferred revenue	
+ increase in Accrued expenses	
Cash from operations	

\$92 cash sales/\$8 credit sales. Separately, company sold (for cash) \$20 in gift cards (still unused)

- \$77 worth of inventory purchased during year:
- \$61 in cash, \$16 on credit; \$72 were used in COGS;
- \$8 in wages earned but not yet paid to employees

Inventory on B/S	
Inventory – BOP	0
Change during period	
Inventory – EOP	

Deferred revenue on B/S	
Def. revenue – BOP	0
Change during period	
Def. revenue – EOP	

Accounts Payable on B/S	
Accounts payable – BOP	9
Change during period	
Accounts payable – EOP	

Accrued expenses on B/S	
Accrued expenses – BOP	0
Change during period	
Accrued expenses – EOP	

Accounts receivable on B/S	
Accounts receivable – BOP	7
Change during period	
Accounts receivable – EOP	

Cash from operations (CFO)

Income Statement	
Revenues	100
Expenses	80
D&A	10
Net income	10
How much cash goes in my pocket?	51
CFS	
Net income	10
D&A	10
- increase in A/R	-8
- Increase in inventory	-5
+ increase in A/P	+16
+ increase in Deferred revenue	+20
+ increase in Accrued expenses	+8
Cash from operations	51

\$92 cash sales/\$8 credit sales. Separately, company sold (for cash) \$20 in gift cards (still unused)

- \$77 worth of inventory purchased during year:
- \$61 in cash, \$16 on credit; \$72 were used in COGS;
- \$8 in wages earned but not yet paid to employees

Inventory on B/S	
Inventory – BOP	0
Change during period	5
Inventory – EOP	5

Deferred revenue on B/S	
Def. revenue – BOP	0
Change during period	20
Def. revenue – EOP	20

Accounts Payable on B/S	
Accounts payable – BOP	9
Change during period	16
Accounts payable – EOP	25

Accrued expenses on B/S	
Accrued expenses – BOP	0
Change during period	8
Accrued expenses – EOP	8

Accounts receivable on B/S	
Accounts receivable – BOP	7
Change during period	8
Accounts receivable – EOP	15

Cash from operations (CFO)

- Below is a summary of the typical line items in the CFO

Cash flows from operations
Net income Starting point of cash flow statement when using indirect method
+ D&A Usually the second line in a CFS is the add back of noncash D&A expense, which is embedded in COGS and operating expenses on the I/S thus reducing net income
- Increases in A/R, inventory, prepaid expenses, other current assets <ul style="list-style-type: none">Increases in working capital asset balances during the period should be reflected as cash outflowsDecreases in working capital asset balances during the period should be reflected as cash inflows
+ Increases in A/P, accrued expenses, taxes payable, and other current liabilities <ul style="list-style-type: none">Increases in working capital liability balances during the period should be reflected as cash inflowsDecreases in working capital liability balances during the period should be reflected as cash outflows
+/- Other changes <ul style="list-style-type: none">+ Impairments- Gains on sale of assets+ Stock based compensation- Increases in deferred tax assets+ Increases in deferred tax liabilities

Cash from investing activities (CFI)

- The CFI section is much more straight forward than CFO – it simply tracks additions and reductions to fixed assets and investments during the year (corresponding primarily to the long-term asset side of the balance sheet). The most common investing inflows/outflows are:
 - Capital expenditures (cash outflow)
 - Purchases of intangible assets (cash outflow)
 - Asset sales (cash inflow)
 - Purchases and sales of debt & equity securities (cash outflow/inflow)

Amounts in millions; Years ended June 30	2013	2012	2011
INVESTING ACTIVITIES			
Capital expenditures	(4,008)	(3,964)	(3,306)
Proceeds from asset sales	584	2,893	225
Acquisitions, net of cash acquired	(1,145)	(134)	(474)
Purchases of available-for-sale investment securities	(1,605)	—	—
Change in other investments	(121)	112	73
TOTAL INVESTING ACTIVITIES	(6,295)	(1,093)	(3,482)

Cash from financing activities (CFF)

- The CFF section of the cash flow statement tracks changes in the company's sources of debt and equity financing (corresponding primarily to the liabilities and shareholders' equity side of the balance sheet). The most common financing inflows/outflows are:
 - Issuance / repayment of debt (cash inflow / outflow)
 - Common stock issued / repurchased (cash inflow / outflow)
 - Payment of common & preferred dividends (cash outflow)



<u>Amounts in millions: Years ended June 30</u>	<u>2013</u>	<u>2012</u>	<u>2011</u>
FINANCING ACTIVITIES			
Dividends to shareholders	(6,519)	(6,139)	(5,767)
Change in short-term debt	3,406	(3,412)	151
Additions to long-term debt	2,331	3,985	1,536
Reductions of long-term debt	(3,752)	(2,549)	(206)
Treasury stock purchases	(5,986)	(4,024)	(7,039)
Impact of stock options and other	3,449	1,729	1,203
TOTAL FINANCING ACTIVITIES	(7,071)	(10,410)	(10,122)
EFFECT OF EXCHANGE RATE CHANGES ON CASH AND CASH EQUIVALENTS			
	4	(113)	163
CHANGE IN CASH AND CASH EQUIVALENTS			
	1,511	1,668	(111)
CASH AND CASH EQUIVALENTS, END OF YEAR	\$ 5,947	\$ 4,436	\$ 2,768

The CFS is a magnifying glass on the cash line on the B/S

- Similarly to how the I/S identifies the year-over-year change for every B/S line item that affects retained earnings, the CFS identifies the year-over-year change of every B/S line item that affects cash.
 - CFO captures the impact of retained earnings, current assets, and current liabilities (and the D&A part of fixed assets and intangibles)
 - CFI captures the impact of long-term assets
 - CFF captures the impact of long term liabilities and equity



The lemonade stand exercise IV – business is booming

Cash from operations and investing activities

\$ in thousands, except per share data	<i>Jan. 1 – Dec. 31, 2015</i>
Net income	
Depreciation & amortization	
Changes in working capital	
Accounts receivable	
Inventory	
Accounts payable	
Accrued expenses	
Deferred revenue	
Asset write down / impairments	
Cash from operations activities	
Capital expenditures	
Asset sales	
Purchases of intangible assets	
Cash from investing activities	

Cash from financing activities

\$ in thousands, except per share data	<i>Jan. 1 – Dec. 31, 2015</i>
Debt issuance	
Debt pay-down	
Stock issuances	
Stock repurchases	
Dividends paid	
Cash from financing activities	
Total net change in cash	

Use the solutions from lemonade stand exercise III to create a CFS for 2015

The lemonade stand exercise IV – business is booming

Cash from operations and investing activities

\$ in thousands, except per share data	<i>Jan. 1 – Dec. 31, 2015</i>
Net income	82.0
Depreciation & amortization	12.4
Changes in working capital	
Accounts receivable	(20.0)
Inventory	(22.0)
Accounts payable	10.0
Accrued expenses	0.0
Deferred revenue	30.0
Asset write down / impairments	10.0
Cash from operations activities	102.4
Capital expenditures	(15.0)
Asset sales	0.0
Purchases of intangible assets	(10.0)
Cash from investing activities	(25.0)

Cash from financing activities

\$ in thousands, except per share data	<i>Jan. 1 – Dec. 31, 2015</i>
Debt issuance	0.0
Debt pay-down	0.0
Stock issuances	0.0
Stock repurchases	(50.0)
Dividends paid	(40.0)
Cash from financing activities	(90.0)
Total net change in cash	(12.64)

Use the solutions from lemonade stand exercise III to create a CFS for 2015

Crash Course in Accounting & Financial Statement Analysis, Third Edition

Financial Statement Analysis

8

Financial statement (ratio) analysis

- Now that we have an understanding of how the financial statements interrelate, we can develop tools to facilitate the analysis of company performance.
- Financial statement analysis relies on looking at relationships (ratios) between 2 or more financial statement accounts and seeing how those ratios change over time, and how they compare across companies or industries. Ratios are broadly classified into four categories:

RATIO ANALYSIS				
Category	Liquidity Ratios	Profitability Ratios	Activity Ratios	Solvency Ratios (Coverage)
Purpose	Measure of a firm's short-term ability to meet its current obligations	Measure of a firm's profitability relative to its assets (operating efficiency) and to its revenues (operating profitability)	Measure of efficiency of a firm's assets	Measure of a firm's ability to repay its debt obligations
Example	Current ratio	Gross margin Operating margin Profit margin EPS	Inventory turnover Receivables turnover Payables turnover Asset turnover	Debt to total capital Debt to equity Debt to EBITDA Debt to int. expense

Activity ratios measure how efficient a company is at using its assets

Receivables turnover	Revenue / Average accounts receivable
Days sales outstanding (DSO)	Days in period / receivables turnover
Inventory turnover	COGS / average inventory
A/P turnover	COGS / Average AP
Payables payment period (PPP)	Days in period / AP turnover

Inventory turnover: If you only need \$50 in inventory to support \$1,000 in COGS that means you carry very little inventory; can be advantageous because it means you do not need large amounts of cash for inventory requirements until a sale is actually made. Had you needed large inventory purchases prior to the sale, you would have had to tap other financing sources like debt.

Receivables turnover / DSO: Identical conceptually to inventory turnover – if you collect very fast from customers, you immediately get cash. If you had to wait a long time for customers to pay, cash that you need for other activities would have to come from somewhere else (like debt). Another way to express the relationship between A/R and sales is **days sales outstanding (DSO)** = $(AR / Credit\ Sales) \times \text{days in period}$.

Activity ratios measure how efficient a company is at using its assets

AP turnover and PPP: Measures how quickly a company pays its vendors. Generally longer credit terms provide a company with more flexibility. Imagine a scenario where you use your cash inflows from operations to fund your operating cash outflows. If the average DSO is 30 days but the average PPP is 15 days, that means that cash from customers takes longer to collect than the terms your vendors have provided you – and implies that you cannot rely on receivables alone to fund your short term credit terms – you'll need to access other capital sources.

Activity ratios measure how efficient a company is at using its assets

Exercise 1: Calculate days sales outstanding (DSO) given the following:

- Accounts Receivable = \$100
- Credit Sales = \$1,000
- Period = 365 days

Input the answers here	
Exercise 1	
Exercise 2	
Exercise 3	

Exercise 2: Calculate inventory turnover given the following:

- Average inventory during period = \$200
- COGS during period = \$800

Exercise 3: Calculate the payables payment period (PPP) given the following:

- Accounts Payable = \$100
- Credit Purchases = \$800
- Period = 365 days

Activity ratios measure how efficient a company is at using its assets

Answers	
Exercise 1	36.5 days
Exercise 2	4.0x
Exercise 3	46 days

Liquidity ratios

Current ratio	Current assets / Current liabilities
Quick ratio (acid test)	Cash and AR / current liabilities

- **The current & quick ratios** gauge the ability of a company to cover short term financing needs.
 - Rough rule of thumb: A current ratio > 1 is good. It implies that there are more liquid assets than short term liabilities, reflecting a healthier level of liquidity.
 - The flip side is that companies with very strong working capital management can operate effectively with lower liquidity ratios, enabling them fund activities more efficiently
 - For example, a company that collects aggressively from customers and has to maintain very few inventory, while at the same time negotiates long payment terms with vendors is able to convert non-cash assets like A/R and inventory into cash quickly and avoid having to use that cash for vendor payments. If it chooses to use that extra cash to finance activities, it would have a low current ratio.

Profitability ratios

Gross profit margin	Gross profit / Revenue
Operating margin	Operating profit / Revenue
Net profit margin	Net income / Revenue
Asset turnover	Revenue / average assets
Return on assets (ROA)	Net income / Average assets
Return on equity (ROE)	Net income / Total equity
Basic EPS	Net income less preferred dividends / weighted avg. shares out.
Diluted EPS	Diluted net income / weighted avg. diluted shares out.
Dividend yield	Dividends / Net income

- **Gross profit margin (GPM):** A company with a 80% GPM collects \$0.80 for every dollar in revenue after accounting for COGS (direct expenses). The higher the margin, the better a company is at converting revenue into profits.
 - **Operating margin:** Like GPM, but captures operating (non-direct) expenses like SG&A.
 - **Net profit margin:** Like OPM but captures all non-operating income/expenses.

Profitability ratios

- **Asset turnover:** Asset turnover can mean several things – a business with \$500 in assets and \$1,000 in revenue (2.0x asset turnover) could be far more capital intensive than a business that achieves the same sales with only \$100 in assets. Alternatively, it could just have a lot more cash. Comparison of similar companies within an industry might shed light on general efficiency – for example Walmart's ratio is 2.3, compared to Sears' 2.0.
- **Return on assets (ROA):** Measures how effective a company is at converting assets into profits, as opposed to just revenue. The higher the ROA the better, although just like with asset turnover, there are many possible scenarios that make this rule of thumb less than perfect.
- For example, if a company chose to retain large cash balances on their books rather than issue dividends, ROA would be very different despite no difference in effectiveness converting assets to profits:

Net income	1,000.0
Assets (large cash balance)	2,000.0
ROA	50%
Assets (same company but with low cash balance)	500.0
ROA	200%

Profitability ratios

- **Return on equity (ROE):** One of the primary challenges with ROA is that it commingles a levered measure of profitability (net income is sensitive to leverage via interest expense) with an unlevered measure of assets (assets can be financed by a lot of leverage or no leverage at all – it is independent of the leverage question).
- The consequence of this is that ROA makes for a poor ratio to use when comparing companies with significantly different rates of leverage.
- ROE solves this challenge by factoring leverage into the denominator and calculates a return on just the equity value of the firm. This facilitates the analysis across companies with varying degrees of leverage.

High leverage co		Low leverage co	
Net income	1,000	Net income	2,000.0
Assets	10,000	Assets	10,000
Equity	3,000	Equity	6,000
ROA	10%	ROA	20%
ROE	33%	ROE	33%

Leverage and solvency ratios

- Leverage / solvency ratios are important to investors (especially lenders) as they try to determine whether borrowers have sufficient profits to make interest payments, and sufficient equity to carry debt.

Debt to EBITDA	Debt/EBITDA
Interest coverage ratio	EBIT / interest expense
Fixed charge coverage	(EBIT + lease charges) / (Lease charges + interest expense)
Debt to total assets	Total debt / total assets
Debt to equity	Total liabilities / Total equity

- Debt to EBITDA** is used to determine a company's debt capacity. For example, lenders contemplating lending to a company with EBITDA of \$100m restrict the loan amount to 5.0x the company's EBITDA.

Leverage and solvency ratios

- **Interest and fixed charge coverage ratios** analyzes how much in profit is available to satisfy interest expense. Coverage ratios are often included in credit agreements whereby a borrower must maintain a certain ratio to be in good standing with the lender.
 - Analysts should understand that since EBIT is a GAAP measure of profitability, it captures many noncash items.
 - As a result, sometimes lenders adjust EBIT to better approximate cash profits.
- **Debt to equity** is used to understand how levered a company is. The higher the D/E, the more highly levered a firm is.
 - Analysts should note, however, that since the book value of equity can seriously underestimate market value of equity for many companies, a market value of equity should be used to better understand leverage.