Financial Analysis

1.02 Financial Statement Analysis Framework

- **Learning Outcome:** The candidate should be able to describe the steps in the financial statement analysis framework.
- **Context:**
  - Analysts work in diverse roles within investment management, including:
    - *Equity analysts*: Evaluate potential equity investments to determine attractiveness and appropriate purchase price.
    - *Credit analysts*: Assess creditworthiness for debt investments and credit ratings.
    - Other tasks include subsidiary performance evaluation, private equity analysis, and identifying overvalued stocks for short positions.
- **Financial Statement Analysis Framework:**

Phase	**Sources of Information**	**Output**
Articulate the purpose and context of the analysis	– Nature of analyst's function (equity/debt investment, credit rating) – Communication with client or supervisor on needs and concerns – Institutional guidelines for work product	– Statement of analysis purpose or objective – List of specific questions to be answered – Nature and content of report – Timetable and resources for completion
Collect data	– Financial statements and other financial data – Questionnaires and industry/economic data – Discussions with issuer, management, suppliers, customers, competitors, experts – Company site visits (e.g., production facilities, retail stores)	– Financial statements and quantitative data in usable form (e.g., spreadsheets) – Completed questionnaires, if applicable
Process data	Data collected in previous phase	– Adjusted financial statements – Common-size statements – Ratios and graphs
Analyze/interpret the data	Input and processed data	– Analytical results – Forecasts – Valuations
Develop and communicate conclusions and recommendations	Analytical results and previous reports	– Analytical report answering initial questions – Recommendations on investment or credit decisions
Follow-up	Periodic repetition of previous steps	– Comparison of actual vs expected results – Revised forecasts – Updated reports and recommendations

Table 1: Financial Statement Analysis Framework

- **Detailed phase description:**
  - *Purpose and context*: Define the role and objectives clearly to tailor analysis.
  - *Data collection*: Gather comprehensive quantitative and qualitative data from diverse sources.
  - *Data processing*: Normalize and transform raw data into analyzable formats like ratios and common-size statements.
  - *Analysis*: Perform detailed interpretation, forecasting, and valuation.
  - *Communication*: Deliver clear conclusions, answering the predefined questions and making actionable recommendations.
  - *Follow-up*: Monitor outcomes and update analysis to reflect changes or new information.

Articulate the Purpose and Context of the Analysis

- **Importance of Understanding Purpose:**
  - Essential to understand the purpose before starting financial statement analysis.
  - Many techniques and large amounts of data make a clear purpose critical.
- **Well-Defined Analytical Tasks:**
  - Some tasks have predefined purposes guided by institutional norms.
  - Examples include:
    * Periodic credit reviews of investment-grade debt portfolios.
    * Equity analysts' quarterly company reports.
  - Formats, procedures, and data sources may also be given in these cases.
- **Less-Defined Analytical Tasks:**
  - Analyst must decide on approach, tools, data sources, report format, and priorities.
  - Important to focus on relevant data and avoid unnecessary calculations.
  - Key questions to consider:
    * What question would the analysis answer if all calculations were instantly available?
    * What decision would that answer support?
- **Defining the Context:**
  - Identify the intended audience of the analysis.
  - Determine the deliverable, e.g., a final report with conclusions and recommendations.

- Establish the time frame and deadlines.
- Understand resources and constraints affecting analysis completion.
- Context may also be predefined by institutional standards.

- **Compiling Specific Questions:**
  - After clarifying purpose and context, compile specific analytical questions.
  - Example: Comparing historical performance of three companies in the same industry might include:
    - What is the relative growth rate of each company?
    - How does their profitability compare?

Collect Data

- **Purpose of Data Collection:**
  - Obtain necessary information to answer the specific analytical questions defined earlier.
  - Understand the target company's:
    - Business model
    - Financial performance
    - Financial position (including trends over time and relative to peers)
- **Scope of Data Needed:**
  - In some cases, financial statement data alone may suffice:
    - Example: Screening many companies for minimum historical profitability or sales growth.
  - For more detailed questions (e.g., why one company outperforms competitors), additional qualitative and quantitative data are required.
- **Consideration of External Environment:**
  - Information on the economy and industry is necessary to understand the company's operating environment.
  - Analysts often use a *top-down approach*:
    1. Understand issuer's macroeconomic environment (e.g., economic growth prospects, inflation)
    2. Analyze industry prospects based on macroeconomic outlook
    3. Assess company prospects given industry and macroeconomic contexts
- **Forecasting and Analysis:**

- Past company data serve as a basis for statistical forecasting of future performance (e.g., earnings growth).
- Understanding economic and industry conditions improves forecast accuracy and insight.

Process Data

- **Purpose of Data Processing:**
  - Apply appropriate analytical tools to the collected financial and other data.
  - Transform raw data into formats and metrics useful for analysis and comparison.
- **Common Analytical Techniques:**
  - Computing financial ratios and growth rates.
  - Preparing common-size financial statements to express line items as percentages of a base (e.g., sales).
  - Creating charts and graphical representations.
  - Performing statistical analyses such as regressions or Monte Carlo simulations.
  - Making forecasts and performing valuations.
  - Conducting sensitivity analyses.
  - Combining multiple tools as appropriate to the task.
- **Comprehensive Financial Analysis Includes:**
  - Reading and evaluating financial results for each company.
  - Understanding factors affecting comparability between companies, such as:
    * Differences in business models.
    * Operating decisions (e.g., leasing vs purchasing fixed assets).
    * Accounting policies (e.g., revenue recognition timing).
    * Different tax jurisdictions.
  - Making necessary adjustments to financial statements or using alternative measures to facilitate comparisons.
  - Recognizing that commonly used databases may not include analyst adjustments.
  - Preparing or collecting:
    * Common-size financial statement data reflecting percentages or changes.
    * Financial ratios evaluating profitability, liquidity, leverage, efficiency, and valuation.
  - Using these processed data to compare a company's performance relative to its past or peers.

Analyze/Interpret the Data

- **Purpose of Analysis:**
  - Interpret processed data outputs to answer specific analytical questions.
  - Numerical results alone are rarely sufficient without interpretation.
- **Role of the Analyst:**
  - Use data interpretation to support conclusions or recommendations.
  - Link analytical findings to the overall purpose of the analysis.
- **Examples of Analysis Outcomes:**
  - *Equity analysis* may include:
    * Forecasts of earnings and free cash flow.
    * Range of fair value estimates.
    * Resulting buy, hold, or sell recommendations.
  - *Credit analysis* may include:
    * Forecasts of free cash flow, interest coverage, and leverage ratios.
    * Support for investment decisions based on creditworthiness.

Develop and Communicate Conclusions and Recommendations

- **Purpose of Communication:**
  - Present conclusions or recommendations clearly in an appropriate format.
  - Format varies by task, institution, and audience.
- **Typical Components of an Equity Analyst's Report:**
  - Summary and investment conclusion.
  - Industry overview and competitive analysis.
  - Financial statement model, possibly including multiple scenarios.
  - Valuation.
  - Investment risks.
- **Regulatory and Professional Standards:**
  - Reports may be subject to requirements from regulatory agencies or professional bodies.
  - The CFA Institute Standards of Practice Handbook provides key guidelines.
- **CFA Institute Standards Highlights:**

- *Standard V(B)* requires:
    - Communication of factors instrumental to the investment recommendation.
    - Clear distinction between opinions and facts.
    - Presentation of basic characteristics of the analyzed security to enable reader evaluation.
    - Disclosure of limitations of the analysis and risks inherent to the investment.
    - Inclusion of all important elements relevant to the analysis and conclusions for informed decision making.

Follow-Up

- **Ongoing Nature of Analysis:**
  - The analysis process continues beyond the initial report.
  - Periodic reviews are essential, especially when:
    - An equity investment has been made.
    - A credit rating has been assigned.
- **Purpose of Follow-Up:**
  - Revise forecasts and recommendations based on new information.
  - Adjust investment or credit decisions as circumstances evolve.
- **Follow-Up for Rejected Investments:**
  - Even if an investment is rejected initially, further analysis may be required if:
    - Security prices change significantly.
    - Business or market conditions evolve.
- **Repetition of the Process:**
  - Follow-up may involve repeating all previous phases of the financial statement analysis framework.
  - This ensures updated insights and relevant recommendations over time.

1.03 Scope of Financial Statement Analysis

- **Role of Financial Statement Analysis:**
  - Use financial reports plus other information to evaluate past, current, and potential performance and financial position.
  - Supports investment, credit, and economic decisions.
  - Managers also use nonpublic data beyond financial statements for decisions.

- **Typical Economic Decisions:**
  - Evaluate equity investments for portfolio inclusion.
  - Value securities for investment recommendations.
  - Assess creditworthiness to extend loans and set terms.
  - Assign debt ratings to companies or bond issues.
  - Make venture capital or private equity investment decisions.
  - Evaluate merger or acquisition candidates.
- **Themes in Financial Analysis:**
  - Examine past and current performance and financial position.
  - Form expectations about future performance and position.
  - Consider risk factors affecting future outcomes.
  - Assess profitability and ability to generate positive cash flows.
- **Earnings Announcements and Analyst Expectations (Exhibit 2):**
  - Earnings announcements provide corporate results relative to analyst expectations.
  - Analysts use earnings to value companies (e.g., P/E ratios, discounted cash flow models).

Panel A: Sea Limited Earnings Release (Excerpt)	**Panel B: News Article Summary (Excerpt)**
– Total GAAP revenue: US$2.9 billion, up 29.0% YoY – Gross profit: US$1.1 billion, up 17.1% YoY – Net loss: US$(931.2) million vs. US$(433.7) million prior year – Adjusted EBITDA: US$(506.3) million vs. US$(24.1) million prior year – E-commerce revenue: US$1.7 billion, up 51.4% YoY – Strategic shift: Suspended e-commerce revenue guidance due to macro uncertainty	– Revenue missed estimates, earnings beat expectations – Stock dropped 14.3% on announcement day – Macro volatility cited as reason for suspending guidance – Focus on efficiency, self-sufficiency emphasized by CEO – Gaming unit "Garena" accounts for 31% of revenue

Table 2: Sea Limited Earnings Announcement and News Media Comparison

- **Credit Analysis and Financial Position (Exhibit 3):**
  - Financial position is critical for credit analysis.
  - Example: T-Mobile's upgrade to full investment grade based on strong operational and financial performance.
  - Ratings reflect subscriber growth, cash flow, debt leverage, network investments, and market position.

Panel A: T-Mobile Credit Rating Announcement (Excerpt)	**Panel B: Moody's Credit Rating Upgrade (Excerpt)**
– First-ever full investment grade rating (BBB- with positive outlook by S&P) – Previous ratings: Baa3 (Moody's), BBB- (Fitch) – Rating upgrade due to operational and financial performance, subscriber growth, and free cash flow – Unlocks full access to investment grade debt markets	– Moody's upgraded senior unsecured debt rating to Baa3 from Ba2 – Affirmed ratings on senior secured notes and revolving credit facility – Stable outlook reflecting subscriber growth, EBITDA margin expansion, and debt leverage improvements – Credit profile supported by network investments and prudent financial policy

Table 3: T-Mobile Credit Rating Upgrade Announcement and Moody's Rating Action

- **Sources Used in Financial Analysis:**
  - Financial statements, notes, and supplementary schedules.
  - Other relevant external and internal information sources.

1.04 Regulated Sources of Information

- **Purpose of Regulation:**
  - Ensure publicly traded companies prepare financial reports following specified accounting standards.
  - Regulatory filings promote transparency, comparability, and reliability of financial information.
- **Examples of Regulatory Requirements:**
  - Swiss-based companies listed on the Swiss Exchange main board must use either:
    * IFRS (International Financial Reporting Standards), or
    * US GAAP (Generally Accepted Accounting Principles) if multinational.

- **Global Regulatory Landscape:**
  - Different jurisdictions have varied securities regulations and corporate reporting standards.
  - Regulators overseeing over 95% of the world's financial markets are members of the International Organization of Securities Commissions (IOSCO).
  - IOSCO members share objectives and principles, creating global uniformity in financial reporting standards.

International Organization of Securities Commissions (IOSCO)

- **Role and Composition:**
  - IOSCO is not a regulatory authority but regulates a significant portion of global financial capital markets.
  - Established in 1983, it consists of:
    * Ordinary members: Securities commissions or similar governmental regulatory authorities with primary responsibility in their jurisdictions.
    * Associate members.
    * Affiliate members.
  - Members regulate over 95% of the world's financial capital markets across more than 115 jurisdictions.
  - Emerging market securities regulators constitute 75% of ordinary membership.
- **Objectives and Principles of Securities Regulation:**
  - IOSCO maintains a comprehensive set of Objectives and Principles of Securities Regulation, updated as needed.
  - These principles serve as an international benchmark.
  - Three core objectives:
    * Protect investors.
    * Ensure markets are fair, efficient, and transparent.
    * Reduce systemic risk.
  - Principles are grouped into 10 categories, including regulators, enforcement, auditing, and issuers.
- **Key Principles for Issuers Related to Financial Reporting:**
  - Full, accurate, and timely disclosure of financial results, risks, and other material information.
  - Use of high-quality, internationally acceptable accounting standards for financial statement preparation.

- **Globalization and Harmonization of Standards:**
  - Historically, regulations and financial reporting standards developed within individual countries reflecting local norms.
  - Global financial markets have increased the need for comparable international financial reporting standards.
  - Laws and regulations remain jurisdiction-specific, necessitating cooperation among regulators.
- **Role of Self-Regulatory Organizations (SROs):**
  - SROs exercise direct oversight within their competence.
  - SROs should be subject to oversight by the relevant regulator.
  - SROs must observe fairness and confidentiality.
- **Importance of Uniform Regulation and Enforcement:**
  - Uniform regulation and enforcement are critical for consistent application of international financial standards (e.g., Basel Committee standards, IFRS).
  - IOSCO facilitates uniform regulation and cross-border cooperation.
  - It aids in combating violations of securities and derivatives laws internationally.

US Securities and Exchange Commission (SEC)

- **Role and Jurisdiction:**
  - Primary regulatory authority for securities and capital markets in the United States.
  - Ordinary member of IOSCO.
  - Regulates any company issuing securities in US capital markets (e.g., NYSE, NASDAQ).
  - Established after the 1929 stock market crash leading to the Great Depression.
- **Key Statutes Enforced by the SEC:**
  - **Securities Act of 1933:**
    * Requires investors to receive significant financial and other information when securities are sold.
    * Prohibits misrepresentations.
    * Requires registration of all public securities issuances.
  - **Securities Exchange Act of 1934:**
    * Created the SEC.
    * Gave SEC authority over all securities industry aspects.

    - Mandates periodic reporting by publicly traded companies.
  - **Sarbanes–Oxley Act of 2002:**
    - Established the Public Company Accounting Oversight Board (PCAOB) to oversee auditors.
    - Addresses auditor independence by restricting certain non-audit services.
    - Requires executive management to certify fairness of financial reports.
    - Mandates management reports on effectiveness of internal controls, confirmed by external auditors.

- **Compliance and Reporting:**
  - Companies comply mainly by filing standardized SEC forms.
  - Over 50 different SEC forms exist; key ones relevant for analysts include:

- **Common SEC Filings:**
  - **Securities Offerings Registration Statement:**
    - Required for new securities offerings under the 1933 Act.
    - Includes disclosures about securities, relation to issuer's other securities, annual filing info, audited financials, and risk factors.
    - Interim unaudited financial statements if filed 3+ months after fiscal year end.
  - **Forms 10-K, 20-F, 40-F:**
    - Annual comprehensive reports; Form 10-K for US registrants, 40-F for some Canadian, 20-F for other non-US.
    - Includes business overview, risk factors, audited financials, MD&A, and auditor reports.
  - **Annual Report:**
    - Not SEC required but commonly prepared for shareholders.
    - Often a polished marketing document with CEO letter, financial data, R&D, and goals.
    - Overlaps with Form 10-K but less legalistic.
  - **Proxy Statement/Form DEF-14A:**
    - Distributed before shareholder meetings.
    - Contains voting proposals, ownership info, director bios, executive compensation.
  - **Forms 10-Q and 6-K:**
    - Quarterly (10-Q for US) or semiannual (6-K for non-US) interim reports.
    - Include unaudited financials, MD&A, and disclose material non-recurring events.

- **Form 8-K (6-K for non-US):**
  - Current reports for major corporate events like acquisitions, management changes, governance, and Regulation FD disclosures.
- **Forms 3, 4, 5, and 144:**
  - Reporting of beneficial ownership by insiders and large holders.
  - Form 3: initial ownership statement; Form 4: changes in ownership; Form 5: annual report; Form 144: notice of proposed sales of restricted securities.
- **Form 11-K:**
  - Annual report on employee stock purchase, savings, and similar plans.
  - Important for companies with significant employee benefit plans.

- **International Context:**
  - Other jurisdictions have similar legislation regulating securities and capital markets.
  - Regulatory authorities enforce rules consistent with IOSCO objectives.
  - Regulators adopt or establish accounting standards and reporting requirements.
  - IOSCO members cooperate internationally to develop, implement, and enforce consistent regulation standards.

Capital Markets Regulation in Europe

- **Regulatory Structure:**
  - Capital markets regulation is primarily managed by individual EU member states within their jurisdictions.
  - Some regulations are adopted at the European Union (EU) level to promote harmonization.

- **IFRS Adoption in the EU:**
  - Since 2005, consolidated accounts of EU-listed companies must use International Financial Reporting Standards (IFRS).
  - The endorsement process balances member states' autonomy with the need for cooperation and convergence.
  - Process overview:
    - The International Accounting Standards Board (IASB) issues new IFRS standards.
    - The European Financial Reporting Advisory Group (EFRAG) advises the European Commission on the standards.
    - The Standards Advice Review Group provides an opinion on EFRAG's advice.

    * The European Commission prepares a draft endorsement regulation based on this input.
    * The Accounting Regulatory Committee votes on the draft.
    * If favorable, the proposal is sent to the European Parliament and Council of the European Union for approval.

- **European Securities Regulatory Bodies:**
  - **European Securities Committee (ESC):**
    * Composed of high-level representatives from member states.
    * Advises the European Commission on securities policy.
  - **European Securities and Markets Authority (ESMA):**
    * EU cross-border supervisor coordinating EU market supervision.
    * Regulation enforcement remains with individual member states.
    * Requirements for share registration and periodic financial reporting vary by country.
    * ESMA is one of three European supervisory authorities, alongside those for banking and insurance sectors.

Financial Notes and Supplementary Schedules

- **Importance of Notes:**
  - Notes (or footnotes) accompany financial statements and often contain a large portion of disclosures in regulatory filings.
  - They provide essential information for understanding the financial statements.
  - Example: Sea Ltd.'s 2021 financial statements include over 60 pages of notes.
- **Contents of Notes:**
  - Basis of preparation:
    * Fiscal year period.
    * Accounting standards used (e.g., US GAAP, IFRS).
    * Currency denomination and rounding conventions.
    * Consolidation basis (e.g., combining subsidiary financials after eliminating intercompany transactions).
  - Accounting policies, methods, and estimates:
    * Flexibility allowed in choosing among alternative accounting policies.
    * Estimates required for recording and measuring transactions and financial statement items.
- **Flexibility and Challenges:**

- Companies select policies and estimates that fairly reflect their unique economic environment.
- Flexibility can reduce comparability across companies.
- Example: Different depreciation methods for similar equipment can hinder performance comparisons.
- Analysts must understand these choices to adjust for meaningful comparison.

- **Scope of Note Disclosures:**
  - Explanatory details for nearly every balance sheet and income statement line item.
  - Additional disclosures often include:
    * Segment reporting.
    * Business acquisitions and disposals.
    * Contractual obligations (on- and off-balance sheet debt).
    * Financial instruments and related risks.
    * Legal proceedings.
    * Related-party transactions.
    * Subsequent events after balance sheet date.

- **Analyst's Use of Disclosures:**
  - Familiarity with company and competitor disclosures improves judgment.
  - Helps determine the relative importance and usefulness of different notes.

Business and Geographic Segment Reporting

- **Operating Segments:**
  - Defined as components that:
    * Engage in activities generating revenue and expenses (including start-ups).
    * Are regularly reviewed by senior management.
    * Have discrete financial information available.
  - Segments meeting quantitative criteria (10% or more of combined revenue, assets, or profit/loss) must be reported separately.
  - If combined external revenue of reportable segments is less than 75% of total revenue, additional segments must be identified until threshold is met.
  - Small segments may be combined if they share similar business or geographic factors.
  - Non-reportable segments are grouped as "all other segments."

- **Disclosure Requirements for Reportable Segments:**

- Factors used to identify reportable segments.
- Types of products and services sold by each segment.
- For each segment, disclose:
  * Revenue (external and inter-segment).
  * Profit or loss.
  * Assets and liabilities (if reviewed by chief decision maker).
  * Interest revenue and expense.
  * Cost of property, plant, and equipment (PPE) and intangible assets acquired.
  * Depreciation and amortization expense.
  * Other non-cash expenses.
  * Income tax expense or income.
  * Share of net profit/loss from equity-accounted investments.
- Reconciliation of segment data to consolidated financial statements for revenue, profit/loss, assets, and liabilities.

• **Usefulness of Segment Reporting:**
  - Helps analysts understand company activities and sources of revenue.
  - Provides insight into profitability and risks by business and geography.

• **Exhibit 4: Sea Ltd. Segment Reporting (Excerpt)**

	Digital Entertainment	E-Commerce	Digital Financial Services	Other Services	Unallocated Expenses	Consolidated
Revenue	4,320,013	5,122,959	469,774	42,444	0	9,955,190
Operating income (loss)	2,500,081	(2,766,566)	(640,422)	(177,633)	(498,520)	(1,583,060)
Non-operating loss, net						(132,124)
Income tax expense						(332,865)
Share of results of equity investees						5,019
Net loss						(2,043,030)

Table 4: Segment Results for Year Ended 31 December 2021 (000s of USD) - Sea Ltd.

• **Geographic Revenue Breakdown (000s of USD):**

Region	**2019**	**2020**	**2021**
Southeast Asia	1,378,141	2,791,894	6,316,782
Latin America	282,618	790,308	1,850,861
Rest of Asia	489,291	655,007	1,394,342
Rest of the World	25,328	138,455	393,205
Consolidated Revenue	2,175,378	4,375,664	9,955,190

Table 5: Revenue by Geography for Years Ended 31 December (000s USD) - Sea Ltd.

• **Key Analytical Insights:**

- E-commerce segment generated over 50% of total revenue in 2021 but incurred a large operating loss.
- Digital entertainment segment accounted for most remaining revenue and was the only profitable segment.
- Southeast Asia and Latin America are the company's most important geographic markets.
- Analysts focus on profitable and large-revenue segments for forecasting and valuation.

- **Management Judgment and Segment Changes:**
  - Segment identification involves significant management judgment.
  - Companies may change segment definitions and related disclosures over time.
- **Single Customer Reliance Disclosure:**
  - Companies must disclose if any single customer accounts for 10% or more of total revenues.
  - Identity of the customer is not disclosed.
  - Such information helps analysts assess concentration risk.

Management Commentary or Management's Discussion and Analysis (MD&A)

- **Overview:**
  - MD&A is a section in regulatory filings (e.g., Form 10-K, 10-Q) where management discusses business nature, past results, and outlook.
  - Known by various names: management reporting, management commentary, operating and financial review, MD&A.
  - Often one of the most useful parts of annual reports besides financial statements.
  - Generally, information in management commentary is unaudited except for financial statement excerpts.
  - In Germany, management reporting is audited and has been required since 1931.
- **IASB IFRS Practice Statement on Management Commentary:**
  - Provides a framework for preparation and presentation of decision-useful management commentary.
  - Framework offers guidance, not mandatory standards.
  - Identifies five key content elements:
- **SEC Requirements in the United States:**

Element No.	Content Element
1	Nature of the business
2	Management's objectives and strategies
3	Significant resources, risks, and relationships
4	Results of operations
5	Critical performance measures

Table 6: Five Content Elements of Decision-Useful Management Commentary (IASB Framework)

- SEC mandates an MD&A section specifying content requirements.
- Management must highlight favorable/unfavorable trends, significant events, and uncertainties affecting liquidity, capital resources, and results.
- Must discuss inflation, changing prices, material events that may cause future results to deviate materially.
- Disclosures on off-balance-sheet obligations and contractual commitments (e.g., purchase obligations) are required.
- Critical accounting policies involving subjective judgments and significant impact on results must be discussed.

- **Usefulness for Analysts:**
  - MD&A provides a good starting point for understanding financial statements.
  - Forward-looking disclosures (capital expenditures, expansions, divestitures) help project future performance.
  - Commentary is one input among others for an objective and independent company assessment.
- **Example: Sea Ltd. 2021 Annual Report (Form 20-F):**
  - Contains sections like "Information on the Company" and "Operating and Financial Review and Prospects."
  - Discusses company history, business model, strategies, key performance indicators, risk factors, relevant laws and regulations.
  - Includes recent financial performance and position, cash flows, working capital, capital expenditures, and key accounting policies.

Auditor's Reports

- **Purpose of Audit Reports:**
  - Financial statements in annual reports generally require an audit by an independent accounting firm.
  - Auditor issues a written opinion on whether the financial statements fairly present the company's financial position, performance, and cash flows.

- Audits may be mandated by law, contract, or regulation.

- **Auditing Standards:**
  - International Standards on Auditing (ISAs) developed by IAASB guide audits in many countries.
  - The U.S. uses PCAOB standards, established after Sarbanes–Oxley Act (2002).
  - Objectives include obtaining reasonable assurance that statements are free of material misstatement (due to fraud or error).
  - Audits use sampling and are based on estimates and assumptions; hence, absolute assurance is not possible.

- **Types of Audit Opinions:**

Opinion Type	**Description**
Unqualified (Unmodified / Clean)	Financial statements present a "true and fair view" or are "fairly presented" in all material respects according to applicable standards. This is the desired opinion.
Qualified	Exceptions or scope limitations exist, described in detail; the opinion is modified but overall statements are fairly presented except for noted issues.
Adverse	Financial statements materially depart from accounting standards and are not fairly presented.
Disclaimer	Auditor cannot express an opinion, often due to scope limitations or insufficient evidence.

Table 7: Types of Audit Opinions

- **Key Audit Matters (KAM) and Critical Audit Matters (CAM):**
  - Included in audit reports of listed companies to highlight areas of greatest audit focus.
  - KAM (international) and CAM (U.S.) concern areas with higher risk of misstatement, significant management judgment, or complex transactions.
  - Communication of KAM/CAM does not change overall audit opinion.
  - Not necessarily the most important factors for analysts/investors but provide insight into audit challenges.

Excerpts from Sea Ltd.'s 2021 Independent Audit Report

- **Opinion on the Financial Statements:**
  - Audited consolidated balance sheets as of December 31, 2021 and 2020, and related statements of operations, comprehensive loss, cash flows, and shareholders' equity for the three years ended December 31, 2021.

    * Opinion: Financial statements fairly present the financial position and results in conformity with U.S. GAAP.
    * Also audited internal control over financial reporting as of December 31, 2021; expressed unqualified opinion.
  - **Basis for Opinion:**
    * Management is responsible for the financial statements; auditors express opinion based on their audits.
    * Audits conducted according to PCAOB standards to obtain reasonable assurance that statements are free from material misstatement (fraud or error).
    * Procedures included risk assessment, tests of evidence, evaluation of accounting principles and estimates, and overall presentation.
  - **Critical Audit Matters (CAM):**
    * Matters communicated to audit committee that relate to material accounts or disclosures and involved challenging, subjective, or complex judgments.
    * Communication of CAMs does not modify the auditor's overall opinion.
  - **CAM 1: Recognition of Digital Entertainment (DE) Revenue**
    * DE revenue recognized over a performance obligation period based on estimated average lifespan of paying users.
    * Judgments required in estimating inactive rate and user behavior.
    * Auditors tested design and operating effectiveness of internal controls over revenue recognition.
    * Procedures included testing completeness and accuracy of user/game data and recalculating deferred revenue.
  - **CAM 2: Measurement of Long-lived Assets in E-commerce (EC) Segment**
    * EC segment's long-lived assets accounted for 75.7% of total; included property, equipment, lease assets, intangibles.
    * Assets evaluated for impairment based on forecasted undiscounted cash flows.
    * Auditing was judgmental due to large carrying amounts and sensitivity to assumptions (e.g., revenue, sales expenses).
    * Auditors tested controls over management's assumptions and assessed reasonableness of forecasts against business strategies and trends.
    * Performed sensitivity analyses to evaluate effects of assumption changes on recoverable value.
  - **Additional Information:**
    * Ernst & Young LLP has served as Sea Ltd.'s auditor since 2010.
    * Audit report dated April 22, 2022, Singapore.

- **Internal Control Reporting (U.S.):**

- Sarbanes–Oxley Act requires auditors to report on effectiveness of internal control over financial reporting.
- Management responsible for establishing and maintaining effective internal controls.
- Requires management to provide evidence supporting the evaluation.

- **Analyst Considerations:**
  - Audit reports provide reasonable, but not absolute, assurance.
  - Analysts should apply healthy skepticism when reviewing audited financial statements and related reports.

1.05 Comparison of IFRS with Alternative Financial Reporting Systems

- **Overview:**
  - Adoption of IFRS by most countries outside the U.S. has advanced global accounting convergence.
  - Significant differences remain, particularly between IFRS and U.S. GAAP, used by many listed companies worldwide.
  - IASB and FASB collaborate to coordinate changes and reduce differences.
  - Convergence of conceptual frameworks was paused in the late 2000s, but new standards have mostly converged (e.g., revenue recognition, leasing, credit losses).
  - Maintaining convergence on new standards is a continuing priority.

- **Key Differences Between IFRS and U.S. GAAP (Exhibit 6):**

Basis for Comparison	**U.S. GAAP**	**IFRS**
Developed by	Financial Accounting Standards Board (FASB)	International Accounting Standards Board (IASB)
Based on	Rules	Principles
Interest paid	Cash Flows from Operating Activities	Cash Flows from Financing Activities or Cash Flows from Operating Activities
Inventory valuation	First in, First out (FIFO); Last in, First out (LIFO); Weighted Average Method	FIFO and Weighted Average Method
Development cost	Treated as an expense	Capitalized only if certain conditions are satisfied
Reversal of inventory write-down	Prohibited	Permissible if specified conditions are met

Table 8: Selected Major Differences between IFRS and U.S. GAAP

- **Implications for Financial Analysis:**
  - Reconciliation disclosures between IFRS and U.S. GAAP are not required.
  - Analysts comparing companies using different standards must be aware of non-converged areas.
  - Often, insufficient information is available to make precise adjustments for comparability.
  - Analysts should exercise caution when interpreting comparative financial metrics under different standards.
  - Monitoring developments in financial reporting standards is essential for accurate performance comparison and valuation.

Monitoring Developments in Financial Reporting Standards

- **Importance for Analysts:**
  - Analysts must monitor ongoing developments in financial reporting and assess their impact on security analysis and valuation.
  - Analysts do not need to be accountants but should understand changes from a user's perspective.
  - Focus is on how developments affect financial reports and the resulting analysis.
- **Key Monitoring Activities:**
  - Tracking new financial products or transactions that may influence reporting.
  - Following actions and publications of standard setters (e.g., IASB, FASB).
  - Engaging with user groups and organizations such as the CFA Institute that represent financial statement users.
  - Reviewing company disclosures about critical accounting policies and estimates.
- **Sources for Monitoring Developments:**

Source	**Description**
New Financial Products/Transactions	Emerging types of transactions or instruments that can affect financial statement recognition and measurement.
Standard Setters (IASB, FASB)	Updates, proposals, and issued accounting standards and interpretations impacting financial reporting.
User Groups (e.g., CFA Institute)	Organizations representing analysts and investors that monitor and comment on financial reporting developments from a user perspective.
Company Disclosures	Management's communication of critical accounting policies, estimates, and changes impacting financial reports.

Table 9: Key Sources for Monitoring Financial Reporting Developments

New Products or Types of Transactions

- **Nature of New Products and Transactions:**
  - New products or transactions often contain unique or unusual elements lacking explicit guidance in financial reporting standards.
  - They typically arise from:
    - Emerging economic events or industries (e.g., fintech).
    - Newly developed financial instruments or structures (e.g., cryptocurrencies, digital assets).
  - Financial instruments may be designed to enhance business operations or mitigate risks.
  - Some instruments or structured transactions may be created primarily for financial report "window dressing."
- **Analyst Monitoring Strategies:**
  - Review company financial reports for disclosures about new products or transactions.
  - Monitor business journals and capital markets to identify emerging products or transactions.
  - Observe industry trends as competitors often adopt similar products or transactions.
- **Analyst Due Diligence:**
  - Understand the business purpose behind new products or transactions.
  - Seek additional information from company management as needed.
  - Management should explain:
    - Economic purpose.
    - Financial reporting treatment.
    - Significant estimates and judgments in reporting.
    - Future cash flow implications.
- **Summary Table for Analyst Considerations:**

Evolving Standards and the Role of CFA Institute

- **Importance of Monitoring Standards:**
  - Regulatory and standard-setting actions often lag behind new product and transaction development.
  - Monitoring changes in financial reporting standards is critical as these changes can affect company financial reports and valuations.

Aspect	Details
Source Identification	Company financial reports, business journals, capital markets, and industry trends
Business Purpose	Understand economic rationale behind the product or transaction
Financial Reporting	Identify applicable accounting treatment, including any lack of explicit guidance
Management Communication	Obtain management's explanation of estimates, judgments, and future cash flow effects
Risk Awareness	Be alert to transactions designed for window dressing or aggressive accounting

Table 10: Key Analyst Considerations for New Products and Transactions

  - Example: Requirement to expense employee stock option grants increased transparency and affected security valuation.
  - More explicit identification in financial statements can influence market valuation as management focuses more on reported items versus notes disclosures.

- **Standard-Setting Bodies and Analyst Involvement:**
  - IASB and FASB provide information on new standards and proposals via their websites.
  - Exposure drafts allow users, including analysts, to provide feedback through comment letters and position papers.
  - Engagement with the analyst community helps shape effective and relevant accounting standards.

- **Role of CFA Institute:**
  - CFA Institute actively supports financial reporting improvements through liaison committees and advocacy.
  - Volunteer members participate in recommending standards and drafting comment letters to IASB and FASB.
  - CFA Institute's comment letters and position papers are publicly available at `www.cfainstitute.org/advocacy`.

- **CFA Institute's 2007 Position Paper Highlights:**
  - Emphasizes the critical role of financial statements in sound investment decision making and market health.
  - Calls for timeliness, transparency, comparability, and consistency in reporting.
  - Advocates for decision relevance over strict reliability to better reflect economic reality.
  - Highlights importance of:

    * Fair value measurement of assets and liabilities.
    * Neutrality in financial reporting.
    * Providing detailed cash flow information via the direct cash flow statement format.

- **Summary and Analyst Actions:**
  - Analysts should stay current on financial reporting developments to improve investment decisions.
  - Analysts can contribute by providing feedback to standard-setting bodies, ensuring user perspectives influence standards.

- **Summary Table: Key Roles and Actions**

Entity / Activity	**Role / Description**
IASB and FASB	Issue new standards and exposure drafts; seek user feedback
CFA Institute	Provides liaison committees; drafts comment letters and position papers; advocates for improved financial reporting
Analysts	Monitor changes; assess impact on financial reports and valuations; contribute feedback on proposals
Market Impact Example	Expensing of employee stock options enhanced transparency and affected valuations
2007 CFA Position Paper	Advocates for transparency, relevance, fair value, neutrality, and direct cash flow reporting to enhance investment decision-making

Table 11: Key Roles in Evolving Financial Reporting Standards

1.06 Other Sources of Information

- **Overview:**
  - Besides regulated issuer filings (annual, interim reports, proxy statements), analysts use multiple other information sources.
  - These sources are grouped by origin: issuer sources, public third-party, proprietary third-party, and proprietary primary research.

- **Issuer Sources (beyond regulatory filings):**
  - **Earnings Calls:** Webcast or teleconference presentations and Q&A sessions by management discussing financial results, expectations, revisions, corporate actions. Platforms like Bloomberg transcribe these.
  - **Presentations and Events:** Investor days and ad hoc events with in-depth management presentations on business or segments. Analysts must be mindful of management bias.

- **Press Releases:** Announcements on events, product changes, management changes, M&A, restructuring, distributed on company websites and news sources.
- **Direct Contact:** Speaking with management, investor relations, or other company personnel.
- **Company Websites and Properties:** Visiting or using products firsthand to gain insight, when possible.

- **Public Third-Party Sources:**
  - Free industry whitepapers and analyst reports from consultancies via internet searches.
  - Economic and industry indicators from governments and organizations (e.g., retail sales, price indexes).
  - General and industry-specific news outlets.
  - Social media for gauging customer sentiment.
- **Proprietary Third-Party Sources:**
  - Analyst reports and communications (sell-side, credit rating agencies).
  - Data platforms such as Bloomberg, Wind, FactSet.
  - Consultancy reports and data, often industry-specific (e.g., Rystad for energy, iQvia for biopharma, Gartner for IT).
- **Proprietary Primary Research:**
  - Surveys, conversations, product comparisons, and other direct studies commissioned or conducted by the analyst.
- **Importance of External Information:**
  - Economic, industry, and peer company information contextualizes financial performance and aids future assessment.
  - External sources are often crucial for effective analysis.
  - Examples:
    * Consumer analysts seek firsthand product experience.
    * Analysts in regulated industries study relevant laws and regulations.
    * Analysts in technical industries gain expertise or consult specialists.
- **Summary Table: Information Sources by Origin**

Source Category	Examples and Description
Issuer Sources	Earnings calls, investor presentations and events, press releases, direct communication with management, company websites and properties
Public Third-Party Sources	Free whitepapers and analyst reports, government economic and industry data, news outlets, social media sentiment
Proprietary Third-Party Sources	Sell-side analyst reports, credit rating agency reports, data platforms (Bloomberg, FactSet, Wind), specialized consultancy reports
Proprietary Primary Research	Surveys, interviews, product testing and comparisons commissioned or conducted by analysts

Table 12: Analyst Information Sources by Origin

2.02 Revenue Recognition

General Principles of Revenue Recognition

- **Accrual Accounting Principle:**
  - Revenue is recognized when it is *earned*, not necessarily when cash is received.
  - Reflects revenue on the income statement when risk and rewards of ownership transfer to the buyer.
  - Commonly coincides with delivery of goods or services.
- **Revenue Recognition Scenarios:**
  - **Credit Sales:**
    - Revenue recognized upon delivery.
    - Corresponding asset (e.g., trade receivable) recorded until cash is collected.
  - **Cash Received in Advance:**
    - Cash receipt recorded as a liability: unearned or deferred revenue.
    - Revenue recognized over time as the product or service is delivered.
    - Example: Subscription payments for cloud-based software delivered over a year.
- **Summary Table: Revenue Recognition Scenarios**

Scenario	When Revenue is Recognized	Accounting Treatment
Sale on Credit	When goods/services are delivered and risk/reward transfer	Record revenue and accounts receivable; cash collected later reduces receivables
Cash Received in Advance	Over the period goods/services are delivered	Record cash received as deferred revenue (liability); recognize revenue progressively

Table 13: Key Revenue Recognition Scenarios

Accounting Standards for Revenue Recognition

- **Converged Standards Overview:**
  - IASB and FASB issued converged revenue recognition standards in May 2014 with nearly identical content.
  - Aim: Provide a principles-based approach applicable across diverse revenue-generating activities.
  - Core principle: Recognize revenue to depict transfer of promised goods or services reflecting the consideration expected.
- **Five-Step Revenue Recognition Model:**
  1. Identify the contract(s) with a customer.
  2. Identify separate or distinct performance obligations in the contract.
  3. Determine the transaction price.
  4. Allocate the transaction price to the performance obligations.
  5. Recognize revenue when (or as) performance obligations are satisfied.
- **Contract and Performance Obligations:**
  - Contract: Agreement with commercial substance, specifying obligations, rights, and payment terms.
  - Collectability must be probable: *More likely than not* (IFRS) vs. *Likely to occur* (US GAAP).
  - Performance obligations: Promises to transfer distinct goods or services that can be separately identified and benefited from.
- **Transaction Price and Allocation:**
  - Transaction price: Seller's estimate of consideration to be received.
  - Allocated to performance obligations based on relative standalone selling prices.
  - Revenue recognized only when it is highly probable it will not be reversed.
  - If reversal probable, recognize minimal revenue and record refund liability and right to returned goods asset.
- **Control Transfer Indicators:**
  - Revenue recognized when control transfers to customer, assessed by factors such as:
    * Present right to payment.
    * Legal title transfer.
    * Physical possession.
    * Significant risks and rewards of ownership.

    * Customer acceptance.

- **Complex Contracts:**
  - Contracts with multiple performance obligations, over time recognition, or varying terms require judgment.
  - Guidance from the five-step model generalizes across diverse contract types.
- **Balance Sheet Presentation:**
  - Recognize revenue and accounts receivable if no payment contingency.
  - If payment conditional on future performance, record contract asset until obligations met.
  - Consideration received in advance recorded as contract liability.
- **Examples of Application:**
  - **Principal vs. Agent (MegaDigital):**
    * Principal: Controls product before transfer; revenue recorded at total consideration.
    * Agent: Arranges transfer of third-party product; revenue recorded as fee or commission.
    * Impact on analysis: Principal sales show higher revenue but lower margins; agent sales show lower revenue but higher margins.

	Principal	**Agent**
Sales	100	30
Cost of Sales	70	0
Gross Profit	30	30
SG&A	10	10
Net Profit	20	20
Gross Margin (%)	30	100
Net Margin (%)	20	67

Table 14: MegaDigital Margin Comparison Principal vs. Agent

  - **Franchising/Licensing (Mahjong Pizza):**
    * Revenue disaggregated into company-owned store sales, franchise royalties/fees, and supply chain revenues.
    * Royalties recognized as a percentage of franchisee sales; upfront fees amortized over contract term.
    * Supply chain revenues recognized upon delivery or shipment.
  - **Software as a Service or License (CReaM Software and Services):**
    * Licenses sold with revenue recognized upfront or over license term depending on ongoing activities.

    * Support and updates revenue recognized ratably over contract term.
    * Cloud subscription revenue recognized over contract term, typically non-cancellable and non-refundable.
  - **Long-Term Contracts (Armored Vehicles Inc. - AVI):**
    * Performance obligations satisfied over time when customer simultaneously receives benefits or controls asset being created.
    * Revenue recognized over contract term using output (e.g., units produced) or input (e.g., costs incurred) methods.
    * Example: USD10M contract with estimated USD7M cost and USD3M profit recognized proportionally as work progresses.

	Year 1	**Year 2**	**Total**
Costs incurred (USD)	4,200,000	3,300,000	7,500,000
Percentage of costs	60%	40%	100%
Revenue recognized (USD)	6,000,000	4,000,000	10,000,000
Profit recognized (USD)	1,800,000	700,000	2,500,000

Table 15: AVI Revenue and Profit Recognition Example

  - **Bill and Hold Arrangements (AVI):**
    * Revenue recognized when control transfers even if physical delivery is delayed.
    * Conditions include substantive reason for arrangement, separately identified product, readiness for delivery, and no ability to redirect product.

- **Disclosure Requirements:**
  - Extensive disclosures required regarding the nature, amount, timing, and uncertainty of revenue and cash flows.
  - Revenues must be disaggregated by product type, geography, customer type, sales channel, contract pricing, duration, or timing.
  - Disclose balances of contract assets/liabilities, remaining performance obligations, transaction prices, and significant judgments.
  - Typically found in financial statement notes titled "Revenue" or similar.

2.03 Expense Recognition

- **General Principles:**
  - Expense recognition aligns with the *matching principle*: expenses are recognized in the same period as the revenues they help generate.
  - Expenses should be recognized when incurred, not necessarily when paid.
  - Simple example: Inventory purchased and sold within the same period—cost of inventory recognized as *cost of goods sold* in that period.

- Operating and administrative expenses are recognized in the period they are incurred regardless of cash payment timing.

- **Complexity in Practice:**
  - Expense recognition timing can be complex due to varying business activities and accounting policies.
  - Distinction between *capitalized costs* (assets) and *expenses* (income statement) is important.
  - Capitalized costs are recorded as assets and amortized or depreciated over time; expenses are recognized immediately.

- **Capitalization vs. Expense:**
  - Costs that provide future economic benefits are generally capitalized.
  - Costs that benefit only the current period are expensed immediately.
  - Capitalized costs appear on the balance sheet as assets, then systematically expensed over useful life.

- **Summary Table: Capitalized vs. Expensed Costs**

Capitalized Costs (Assets)	**Expensed Costs (Income Statement)**
Purchase of property, plant, and equipment	Routine maintenance and repairs
Development costs meeting specific criteria	General administrative expenses
Software development costs meeting criteria	Selling expenses
Prepaid expenses (e.g., insurance)	Utilities expense
Costs with future economic benefit beyond current period	Costs without future economic benefit

Table 16: Examples of Capitalized vs. Expensed Costs

- **Implications for Financial Analysis:**
  - Differences in capitalization policies can impact profitability and asset base.
  - Analysts must understand company-specific policies to adjust comparability across firms.
  - Timing differences in expense recognition affect earnings volatility and trend analysis.

General Principles of Expense Recognition

- **Expense Recognition Overview:**
  - Expenses are recognized in the period when economic benefits are consumed or lost.
  - Three common expense recognition models:
    * Matching principle
    * Expensing as incurred
    * Capitalization with subsequent depreciation or amortization
  - Matching principle aligns expenses with associated revenues recognized in the same period.
  - IFRS refers to "matching concept" or process resulting in matching costs with revenues rather than a strict "matching principle."

- **Matching Principle Applied to Inventory (Example 2):**
  - Kahn Distribution Limited (KDL) purchases and sells inventory items over 20X1.
  - Inventory Purchases during 20X1:
    * Q1: 2,000 units @ USD 40/unit
    * Q2: 1,500 units @ USD 41/unit
    * Q3: 2,200 units @ USD 43/unit
    * Q4: 1,900 units @ USD 45/unit
  - Total units purchased: 7,600 units at total cost USD 321,600.
  - Units sold: 5,600 units at USD 50/unit.
  - Ending inventory: 2,000 units (1,900 from Q4, 100 from Q3).
  - Objective: Determine revenue and expense for 20X1 based on specific identification of sold and remaining inventory.

Inventory Period	**Units Sold**	**Cost per Unit (USD)**
Q1	2,000	40
Q2	1,500	41
Q3	2,100 (2,200 - 100)	43
Q4	0	45
Total Units Sold	**5,600**	

Table 17: Specific Identification of Inventory Sold in 20X1

- **Revenue and Expense Calculation:**
  - Revenue from sales = 5,600 units × USD 50 = USD 280,000.
  - Cost of goods sold (COGS) =

$$(2,000 \times 40) + (1,500 \times 41) + (2,100 \times 43) = 80,000 + 61,500 + 90,300 = 231,800$$

- Ending inventory cost =

$$(100 \times 43) + (1,900 \times 45) = 4,300 + 85,500 = 89,800$$

- **Period Costs (Expensed as Incurred):**
  - Costs less directly matched with revenue are expensed when incurred.
  - Examples: administrative, managerial, IT, research and development, and maintenance costs.
  - Payroll expenses generally expensed immediately unless capitalized as product costs.
  - Sales commissions capitalized and expensed systematically or with sales.

Capitalization versus Expensing

- **Overview:**
  - Certain expenditures are capitalized as assets on the balance sheet and shown as investing cash outflows.
  - Capitalized assets are depreciated or amortized over their useful life, except for non-depreciable assets (e.g., land) or indefinite-life intangibles.
  - Depreciation and amortization are non-cash expenses that reduce net income but do not affect cash flow directly.
  - This approach aligns with the matching principle by spreading expenses over the asset's useful life.
- **Example 3: Financial Impact of Capitalizing versus Expensing**

	CAP Inc. (Capitalize EUR900)			**NOW Inc. (Expense EUR900 Immediately)**		
Year	1	2	3	1	2	3
Revenue	1,500	1,500	1,500	1,500	1,500	1,500
Cash Expenses	500	500	500	1,400	500	500
Depreciation	300	300	300	0	0	0
Income before Tax	700	700	700	100	1,000	1,000
Tax at 30%	210	210	210	30	300	300
Net Income	490	490	490	70	700	700
Cash from Operations	790	790	790	70	700	700
Cash Used in Investing	(900)	0	0	0	0	0
Total Change in Cash	(110)	790	790	70	700	700

Table 18: Exhibit 1: Capitalizing versus Expensing

	CAP Inc.				**NOW Inc.**			
Item	Time 0	End Yr 1	End Yr 2	End Yr 3	Time 0	End Yr 1	End Yr 2	End Yr 3
Cash	1,000	890	1,680	2,470	1,000	1,070	1,770	2,470
PP&E (net)	—	600	300	—	—	—	—	—
Total Assets	1,000	1,490	1,980	2,470	1,000	1,070	1,770	2,470
Retained Earnings	0	490	980	1,470	0	70	770	1,470
Common Stock	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Total Shareholders' Equity	1,000	1,490	1,980	2,470	1,000	1,070	1,770	2,470

Table 19: Balance Sheet Summary for CAP Inc. vs NOW Inc.

- **Key Insights from Example 3:**
  - Total net income over three years is identical whether capitalized or expensed.
  - Capitalizing results in higher profitability in early years, lower in later years.
  - Expensing immediately results in lower early profits but higher later profits.
  - Shareholders' equity is higher initially under capitalization due to higher retained earnings.
- **Example 4: Impact of Ongoing Capital Expenditures**
  - A company purchases a GBP300 computer with a 3-year life, depreciating GBP100 per year.
  - Capitalizing leads to GBP200 higher pre-tax profit in Year 1 compared to expensing immediately.
  - Capitalizing increases reported cash from operations compared to expensing.
  - Analysts should watch for capitalization used to manipulate operating cash flow or earnings targets.
- **Implications for Financial Analysis:**
  - Capitalization enhances current profitability and operating cash flow if capital expenditures exceed depreciation.
  - Expensing reduces current profits but improves future profitability trends.
  - Tax treatments can influence the cash flow impact of expensing versus capitalizing.
  - Analysts must consider capitalization policies when comparing firms, especially across industries.
  - Identifying significant discretionary capitalization is challenging but critical for analysis.

Capitalization of Interest Costs

- Companies generally capitalize interest costs incurred to acquire or construct assets requiring a long period to prepare for use.
- Capitalized interest appears on the balance sheet as part of the asset (long-lived asset or inventory) and is expensed over time through depreciation or cost of sales.
- Expensed interest is recognized immediately on the income statement.
- Capitalized interest affects cash flow presentation:
  - Capitalized interest is part of investing cash outflows.
  - Expensed interest reduces operating cash flow under US GAAP; under IFRS it may reduce operating or financing cash flows.

- For accurate solvency analysis, interest coverage ratios should include both capitalized and expensed interest to reflect the total interest cost.
- Depreciation of capitalized interest should be adjusted in income to avoid double counting in interest expense.
- Credit rating agencies, e.g., Standard & Poor's, include capitalized interest in coverage ratio calculations (EBIT divided by gross interest before capitalized interest deductions).
- Financial covenants in lending agreements often specify interest coverage ratio definitions, making consistent treatment of capitalized interest critical for covenant compliance.

Example: Melco Resorts & Entertainment Limited (2017) Disclosed data (in thousands USD):

	2017	**2016**	**2015**
EBIT (income + interest net of capitalized interest)	544,865	298,663	58,553
Interest expense (income statement)	229,582	223,567	118,330
Capitalized interest (footnote)	37,483	29,033	134,838
Amortization of deferred financing costs	26,182	48,345	38,511
Net cash provided by operating activities	1,162,500	1,158,128	522,026
Net cash from (used) in investing activities	(410,226)	280,604	(469,656)
Net cash from (used) in financing activities	(1,046,041)	(1,339,717)	(29,688)

Table 20: Melco Resorts & Entertainment Limited Selected Financial Data (USD thousands)

- **Interest Coverage Ratio:** Should include both capitalized and expensed interest to reflect total interest cost.
- **Operating Cash Flow Change:** Between 2016 and 2017, operating cash flow increased slightly; capitalized interest reduces operating cash flow but increases investing cash outflow.
- **Analyst Considerations:**
  - Examine impact of capitalized interest on reported cash flows.
  - Adjust interest coverage ratios by adding capitalized interest to interest expense.
  - Review financial covenants definitions regarding interest coverage.

Summary: Capitalized interest shifts costs between income statement and balance sheet and affects cash flow classification. Analysts must carefully adjust coverage ratios and cash flow analysis to reflect true economic cost of interest and solvency position.

Capitalization of Internal Development Costs

- Accounting standards require capitalization of software development costs after technological feasibility is established.
- Judgment is involved in determining feasibility timing, causing variability in capitalization practices across companies.
- Example: Microsoft capitalizes software costs only shortly before manufacturing, effectively expensing most R&D costs.
- Expensing development costs results in:
  - Lower net income in the current period.
  - Lower net operating cash flows but higher investing cash flows (due to capitalized costs).
- Analysts can adjust financial statements of companies that capitalize development costs to make them comparable to companies that expense all development costs by:
  1. Adding software development costs as an expense and excluding amortization of prior capitalized costs on the income statement.
  2. Excluding capitalized software assets from the balance sheet (reducing assets and equity).
  3. Adjusting the statement of cash flows to decrease operating cash flows and investing cash used by the current period development costs.
- These adjustments affect ratios involving income, long-lived assets, and operating cash flows (e.g., return on equity).

	2018	2017	2016
Consolidated Statement of Earnings (USD thousands)			
Total revenue	91,424	91,134	96,293
Total operating expenses	78,107	78,908	85,624
Operating income	13,317	12,226	10,669
Provision for income taxes	3,825	4,232	3,172
Net income	9,492	7,994	7,479
Earnings per share (EPS)	1.40	0.82	0.68
Statement of Cash Flows (USD thousands)			
Net cash provided by operating activities	15,007	14,874	15,266
Net cash used in investing activities*	(11,549)	(4,423)	(5,346)
Net cash used in financing activities	(8,003)	(7,936)	(7,157)
Net change in cash and cash equivalents	(4,545)	2,515	2,763
*Includes software development expenses and capital expenditures:			
Software development expenses	(6,000)	(4,000)	(2,000)
Capital expenditures	(2,000)	(1,600)	(1,200)
Additional Information			
Market value of outstanding debt	0	0	0
Amortization of capitalized software development expenses	(2,000)	(667)	0
Depreciation expense	(2,200)	(1,440)	(1,320)
Market price per share	42	26	17
Shares outstanding (thousands)	6,780	9,765	10,999

Table 21: JHH Software Financial Summary (USD thousands, except per share)

Example 6: JHH Software (hypothetical company)

- Analysts should compute key ratios (e.g., P/E, Price/Operating Cash Flow, EV/EBITDA) based on reported data and assess impacts if capitalization policy were replaced by full expensing.
- Expensing development costs typically lowers current income but improves income trends if development spending grows.
- If development spending declines below amortization, expensing would increase income relative to capitalization.
- Summary:
  - Earlier expensing reduces current profits but enhances profit trends.
  - Capitalization boosts current profits but results in lower future profits.
  - Understanding capitalization policies is crucial for comparing company financial performance and valuation metrics.

Implications for Financial Analysts: Expense Recognition

- Expense recognition policies vary in conservatism:
  - Policies recognizing expenses later (delayed recognition) are considered less conservative.

  - Policies recognizing expenses sooner are more conservative.

- Many expense items require significant estimates that can materially affect net income.
- Analysts must understand changes and differences in estimates, including:
  - Uncollectible accounts as a percentage of sales.
  - Warranty expenses as a percentage of sales.
  - Estimated useful lives of assets.
- Year-to-year changes in these estimates should be analyzed to determine if they:
  - Reflect genuine changes in business operations (e.g., fewer warranty claims due to improved product quality).
  - Appear unrelated to business operations and potentially indicate earnings management or manipulation.
- Cross-company differences in estimates require scrutiny:
  - Are differences consistent with operational factors?
    * Different customer creditworthiness or credit policies explaining uncollectible accounts.
    * Newer equipment affecting estimated useful lives.
  - Or inconsistent differences might suggest manipulation.
- Relevant information on accounting policies and estimates can be found in:
  - Notes to financial statements.
  - Management discussion and analysis (MD&A) sections of annual reports.
- Monetary quantification of differences in expense recognition and estimates facilitates:
  - More meaningful comparisons across companies or against historical performance.
  - Adjusting reported expenses onto a comparable basis.
- When monetary adjustments are not feasible, analysts can:
  - Qualitatively characterize the conservatism of policies and estimates.
  - Assess potential impacts on reported expenses and financial ratios.

2.04 Non-Recurring Items

Unusual or Infrequent Items

- Financial statements report past earnings but analysts must assess which income and expense items will likely continue in the future.
- Separating recurring from non-recurring items helps evaluate future earnings reliability.
- **Discontinued operations** must be reported separately from continuing operations under both IFRS and US GAAP.
- Other items reported separately may include:
  - Unusual items.
  - Infrequent items.
  - Effects due to changes in accounting policies.
  - Non-operating income.
- IFRS requires separate disclosure of material or relevant income/expense items for understanding performance.
- US GAAP requires unusual/infrequent material items (post-Dec 15, 2015) to be presented separately but as part of continuing operations.
- Examples include:
  - Restructuring charges (e.g., plant closures, employee termination costs).
  - Gains or losses on sales of assets or business parts (considered ordinary business activities).
- Highlighting unusual or infrequent nature aids analysts in judging likelihood of reoccurrence.

Groupe Danone Consolidated Income Statement	2016 (EUR Millions)	2017 (EUR Millions)
Sales	21,944	24,677
Cost of goods sold	(10,744)	(12,459)
Selling expense	(5,562)	(5,890)
General and administrative expense	(2,004)	(2,225)
Research and development expense	(333)	(342)
Other income (expense)	(278)	(219)
Recurring operating income	3,022	3,543
Other operating income (expense)	(99)	192
Operating income	2,923	3,734
Interest income on cash equivalents and short-term investments	130	151
Interest expense	(276)	(414)
Cost of net debt	(146)	(263)
Other financial income	67	137
Other financial expense	(214)	(312)
Income before tax	2,630	3,296
Income tax expense	(804)	(842)
Net income from fully consolidated companies	1,826	2,454
Share of profit of associates	1	109
Net income	1,827	2,563
Net income – Group share	1,720	2,453
Net income – Non-controlling interests	107	110

Table 22: Excerpt from Groupe Danone Income Statement (2016-2017)

- Danone separately discloses “Other operating income (expense)” as items *not* included in recurring operating income.
- According to Danone’s footnotes (Exhibit 9), “Other operating income (expense)” includes:
  - Capital gains and losses on disposals of fully consolidated companies.
  - Impairment charges on goodwill.
  - Costs related to strategic restructuring and major external growth transactions.
  - Costs related to major crises and litigation.
  - Acquisition costs related to business combinations.
  - Revaluation profit or loss following loss of control.
  - Changes in earn-outs post-acquisition.
- In 2017, Danone’s net “Other operating income” (€192 million) included:
  - Capital gain on disposal of Stonyfield: €628 million.
  - Compensation from Singapore arbitration court (Fonterra case): €105 million.
  - Territorial risks in ALMA region: (€148 million).
  - Integration costs of WhiteWave acquisition: (€118 million).
  - Impairment of intangible assets: (€115 million).

- Analysts should evaluate whether such exceptional items are likely to recur and assess potential impacts on future earnings.
- It is generally unwise to simply ignore all unusual items; some may have ongoing implications.

Discontinued Operations

- **Definition:** When a company disposes of, or plans to dispose of, a component of its operations with no further involvement, the results are reported separately as *discontinued operations* under both IFRS and US GAAP.
- **Criteria for Reporting:** The discontinued component must be separable both physically and operationally from the continuing business.
- **Income Statement Presentation:**
  - Results from discontinued operations are presented *net of tax* at the bottom of the income statement.
  - Per-share effects of discontinued operations are also reported separately.
  - Remaining income statement items represent continuing operations.
- **Balance Sheet Presentation:** Assets and liabilities related to discontinued operations are aggregated and classified as *held for sale*.
- **Analytical Implications:**
  - Separation facilitates clear evaluation of continuing versus discontinued operations.
  - Since discontinued operations no longer contribute to earnings or cash flow after disposal, analysts typically exclude them when forecasting future financial performance beyond the disposal date.

Changes in Accounting Policy

- **Nature of Changes:**
  - Standard setters sometimes require companies to change accounting policies.
  - Changes can be adopted either *prospectively* (going forward) or *retrospectively* (restating prior periods).
  - Management may also change accounting policies voluntarily to better reflect company performance.
- **Retrospective Application:**
  - Financial statements for all periods presented are restated as if the new policy had always been used.

- Notes disclose the nature and justification of the change.
- Ensures comparability across periods within the report.

- **Example - Microsoft (New Revenue Recognition Standard):**
  - Adopted new standard early on 1 July 2017 using the *full retrospective method.*
  - Restated 2016 and 2017 income statements as if the new standard had been applied.
  - Revenue recognition for Windows 10 changed from ratable over device life to mostly at billing and delivery.
  - Multi-year commercial software subscriptions recognized at contract execution instead of ratably.

	As Previously Reported	**New Revenue Standard Adjustment**	**As Restated**
Income Statements			
Year Ended 30 June 2017			
Revenue	89,950	6,621	96,571
Provision for income taxes	1,945	2,467	4,412
Net income	21,204	4,285	25,489
Diluted earnings per share	2.71	0.54	3.25
Year Ended 30 June 2016			
Revenue	85,320	5,834	91,154
Provision for income taxes	2,953	2,147	5,100
Net income	16,798	3,741	20,539
Diluted earnings per share	2.10	0.46	2.56

Table 23: Impact of New Revenue Recognition Standard on Microsoft's Financials

- **Modified Retrospective Approach:**
  - Allows companies to avoid restating prior periods.
  - Companies adjust opening retained earnings for cumulative impact at adoption date.

- **Changes in Accounting Estimates:**
  - Handled *prospectively*, affecting only current and future periods.
  - No restatement or income statement adjustment for prior periods.
  - Must be disclosed in notes if significant.
  - *Example:* Catalent Inc. changed pension cost calculation using spot rates instead of weighted-average discount rates (Exhibit 11).

- **Correction of Errors:**
  - Prior period errors require *restatement* of all affected financial statements.
  - Disclosures required to explain the nature and effect of the error.
  - Such disclosures may indicate weaknesses in accounting systems or controls.

Changes in Scope and Exchange Rates

- **Changes in Scope:**
  - Occur when a company acquires a controlling interest in another entity.
  - The acquirer consolidates the target's financial statements from the acquisition closing date.
  - Such acquisitions can materially affect the comparability of financial results and position relative to prior periods.
  - The size of the acquisition relative to the acquirer influences the magnitude of the impact.
- **Changes in Exchange Rates:**
  - Affect multinational companies' income statements.
  - A strengthening of the company's functional currency against the reporting currency tends to increase reported revenues.
  - Conversely, a weakening of the functional currency against the reporting currency tends to decrease reported revenues.
- **Disclosure Practices:**
  - Accounting standards do not mandate disclosure of the effects of scope or exchange rate changes on financial statements or specific line items.
  - However, many issuers voluntarily disclose summary information, such as revenue and EPS growth rates adjusted to exclude the effects of scope and exchange rate fluctuations.
  - Such disclosures are typically found in management commentary or other sections outside the formal financial statements.
- **Further Details:**
  - The financial statement implications of changes in scope and exchange rates will be discussed in greater detail in later curriculum modules.

2.05 Earnings per Share

Learning Outcome

- Describe how earnings per share (EPS) is calculated.
- Calculate and interpret basic and diluted EPS for companies with simple and complex capital structures, including those with antidilutive securities.

Overview

- EPS is a key income statement metric important to equity investors.
- IFRS and US GAAP require EPS presentation on the income statement for:
  - Net profit or loss (net income).
  - Profit or loss from continuing operations.
- The calculation differs for companies with simple versus complex capital structures.

Simple versus Complex Capital Structure

- **Capital structure** consists of equity and debt.
- **Ordinary shares** (IFRS) or **common stock** (US GAAP) represent equity subordinate to all others and are the true owners.
- A **simple capital structure** has no potentially convertible financial instruments.
- A **complex capital structure** includes potentially dilutive financial instruments, e.g.:
  - Convertible bonds.
  - Convertible preferred stock.
  - Employee stock options.
  - Warrants (equity call options issued by the company).
- Dilutive instruments can decrease EPS upon conversion or exercise.

Basic and Diluted EPS

- **Basic EPS** is calculated using:
  - Reported earnings available to common shareholders.
  - Weighted average number of shares outstanding.
- **Diluted EPS** estimates EPS assuming all dilutive instruments are converted into common stock.
- Both EPS metrics are required to be reported, including from continuing operations.

Example: AB InBev Earnings per Share

Earnings per Share (USD)	**2017**	**2016**	**2015**
Basic EPS	4.06	0.72	5.05
Diluted EPS	3.98	0.71	4.96
Basic EPS from continuing operations	4.04	0.69	5.05
Diluted EPS from continuing operations	3.96	0.68	4.96

Table 24: AB InBev Earnings per Share (USD), 12 Months Ended 31 December

- AB InBev's basic EPS ("before dilution") was USD 4.06 in 2017; diluted EPS ("after dilution") was USD 3.98.
- EPS from continuing operations is also shown separately.
- EPS was significantly higher in 2017 than in 2016 across all measures.
- Analysts seek to understand the underlying causes of EPS changes, including capital structure impacts.

Basic Earnings per Share (EPS)

- **Definition:** Basic EPS is the amount of income available to common shareholders divided by the weighted average number of common shares outstanding during the period.
- **Income available to common shareholders:** Net income minus preferred dividends (if any).
- **Basic EPS formula:**

$$\text{Basic EPS} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Weighted Average Number of Common Shares Outstanding}}$$

- **Weighted average shares example:** If a company begins the year with 2,000,000 shares and repurchases 100,000 shares on July 1, the weighted average shares is:

$$2,000,000 \times \frac{1}{2} + 1,900,000 \times \frac{1}{2} = 1,950,000$$

- **Stock dividends and splits:** Adjust the weighted average shares retroactively to the beginning of the period to reflect changes such as stock dividends or stock splits.

Example 8: Basic EPS Calculation (1)

- Shopalot Company, year ended 31 December 2018:
  - Net income = USD 1,950,000

- Common shares outstanding = 1,500,000
- No preferred stock, no convertible instruments

- **Basic EPS:**

$$\frac{1,950,000}{1,500,000} = 1.30 \text{ USD per share}$$

Example 9: Basic EPS Calculation (2)

- Angler Products, year ended 31 December 2018:
  - Net income = USD 2,500,000
  - Preferred dividends = USD 200,000
  - Common shares outstanding schedule (Exhibit 25):

Date	Shares Outstanding
1 January 2018	1,000,000
1 April 2018 (issued)	200,000
1 October 2018 (repurchased)	(100,000)
31 December 2018	1,100,000

Table 25: Angler Products Common Stock Shares

- **Calculate weighted average shares:**

$$1,000,000 \times \frac{3}{12} + 1,200,000 \times \frac{6}{12} + 1,100,000 \times \frac{3}{12} = 1,125,000$$

- **Calculate Basic EPS:**

$$\frac{2,500,000 - 200,000}{1,125,000} = 2.00 \text{ USD per share}$$

Example 10: Basic EPS Calculation (3) — Stock Split Adjustment

- Same facts as Example 9 except:
  - 2-for-1 stock split effective 1 December 2018.
  - Shares outstanding double retroactively for the full year.

- **Adjusted weighted average shares:**

$$1,125,000 \times 2 = 2,250,000$$

- **Calculate Basic EPS after stock split:**

$$\frac{2,500,000 - 200,000}{2,250,000} = 1.02 \text{ USD per share}$$

Diluted EPS: The If-Converted Method

- **Definition:** Diluted Earnings per Share (EPS) reflects the potential dilution of earnings per share that would occur if all potentially dilutive financial instruments were converted into common stock. It is always *less than or equal to* basic EPS.
- **Simple vs. Complex Capital Structure:**
  - **Simple capital structure:** No potentially dilutive instruments, so

$$\text{Basic EPS} = \text{Diluted EPS}$$

  - **Complex capital structure:** Includes instruments like convertible preferred stock, convertible debt, and employee stock options which can dilute EPS.
- **Purpose:** To provide shareholders and potential investors with the "worst-case" earnings per share scenario by considering all convertible securities as if converted to common stock.
- **Potentially Dilutive Instruments and Their Effects:**
  1. **Convertible Preferred Stock:** Preferred shares that can be converted into common shares; the dilution effect is considered by adding back preferred dividends to net income and increasing the denominator by the number of shares issuable on conversion.
  2. **Convertible Debt:** Bonds or other debt instruments convertible into common stock; dilution is accounted for by adding back interest expense (net of tax) to net income and increasing shares outstanding by shares issuable on conversion.
  3. **Employee Stock Options and Warrants:** Potential dilution considered by the treasury stock method, which assumes proceeds from exercise are used to buy back shares at the average market price.
- **Not All Instruments Are Dilutive:** Some convertible securities might be antidilutive if their conversion increases EPS. Such instruments are excluded from the diluted EPS calculation to avoid overestimating dilution.

Diluted EPS When a Company Has Convertible Preferred Stock Outstanding

- **If-Converted Method Overview:**
  - Diluted EPS is calculated assuming all convertible preferred shares were converted into common stock at the beginning of the period.
  - This method considers two effects of conversion:
    1. Convertible preferred shares are no longer outstanding, increasing the weighted average number of common shares.

2. Preferred dividends are not paid, increasing net income available to common shareholders.

- **Diluted EPS Formula (If-Converted Method for Convertible Preferred Stock):**

$$\text{Diluted EPS} = \frac{\text{Net Income} + \text{Preferred Dividends}}{\text{Weighted Average Common Shares} + \text{Shares Issuable on Conversion}}$$

- **Example 11: Calculation for Bright-Warm Utility Company**
  - Net income = USD 1,750,000
  - Weighted average common shares outstanding = 500,000
  - Convertible preferred shares outstanding = 20,000
  - Dividend per preferred share = USD 10
  - Conversion ratio = 1 preferred share converts into 5 common shares

- **Step 1: Calculate Basic EPS**

$$\text{Basic EPS} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Weighted Average Common Shares}} = \frac{1,750,000 - (20,000 \times 10)}{500,000} = \frac{1,550,000}{500,000} = 3.10$$

- **Step 2: Calculate Diluted EPS**
  - Add back preferred dividends to net income:

$$1,750,000 + (20,000 \times 10) = 1,950,000$$

  - Add shares issuable on conversion:

$$500,000 + (20,000 \times 5) = 600,000$$

  - Diluted EPS:

$$\frac{1,950,000}{600,000} = 3.25$$

- **Interpretation:** Diluted EPS is higher than basic EPS because the effect of removing preferred dividends and increasing shares outstanding is net positive in this case.

Item	**Amount (USD)**
Net income	1,750,000
Preferred dividends (20,000 shares × 10)	200,000
Net income available to common (basic EPS numerator)	1,550,000
Weighted average common shares (basic EPS denominator)	500,000
Basic EPS	3.10
Shares issuable on conversion (20,000 × 5)	100,000
Adjusted net income (add back preferred dividends)	1,950,000
Adjusted weighted average shares (basic + conversion)	600,000
Diluted EPS	3.25

Table 26: Bright-Warm Utility Company: Basic and Diluted EPS Calculation Using If-Converted Method

Diluted EPS: The Treasury Stock Method

- **Concept:**
  - Used when stock options, warrants, or similar instruments are outstanding.
  - Assumes all such instruments are exercised at their exercise price.
  - Proceeds from exercise are used to repurchase shares at the average market price during the period.
  - Incremental shares added to diluted EPS denominator = Shares issued − Shares repurchased.
  - No change to net income (numerator) when calculating diluted EPS.
- **Calculation steps:**
  1. Calculate shares issued on exercise of options/warrants.
  2. Compute proceeds from exercise = Shares issued × Exercise price.
  3. Calculate shares repurchased = Proceeds from exercise ÷ Average market price.
  4. Determine incremental shares = Shares issued − Shares repurchased.
  5. Add incremental shares (time-weighted if issued during the period) to weighted average shares outstanding.
  6. Compute diluted EPS = Net Income ÷ (Weighted average shares + incremental shares).
- **Formula:**

$$\text{Diluted EPS} = \frac{\text{Net Income}}{\text{Weighted Avg. Shares Outstanding} + (\text{Shares Issued} - \text{Shares Repurchased}) \times \text{Proportion of Year Outstanding}}$$

- **Example 13 (US GAAP Treasury Stock Method):**
  - Net Income = USD 2,300,000
  - Weighted average shares outstanding = 800,000
  - Options outstanding = 30,000 shares
  - Exercise price = USD 35
  - Average market price = USD 55

$$
\begin{aligned}
\text{Shares issued} &= 30,000 \\
\text{Proceeds from exercise} &= 30,000 \times 35 = 1,050,000 \\
\text{Shares repurchased} &= \frac{1,050,000}{55} \approx 19,091 \\
\text{Incremental shares} &= 30,000 - 19,091 = 10,909 \\
\text{Diluted shares outstanding} &= 800,000 + 10,909 = 810,909 \\
\text{Basic EPS} &= \frac{2,300,000}{800,000} = 2.875 \\
\text{Diluted EPS} &= \frac{2,300,000}{810,909} \approx 2.84
\end{aligned}
$$

- **Example 14 (IFRS Treatment):**
  - IFRS uses a similar approach without naming it the treasury stock method.
  - Weighted average shares for diluted EPS include incremental shares calculated identically.
  - Resulting diluted EPS matches the US GAAP calculation.

Changes in EPS

- AB InBev's fully diluted EPS from continuing operations rose significantly from USD 0.68 in 2016 to USD 3.96 in 2017 (see Exhibit 12).
- General reasons for an EPS increase:
  - Increase in net income (numerator).
  - Decrease in weighted average shares outstanding (denominator).
  - Combination of both factors.
- For AB InBev, weighted average shares outstanding for both basic and diluted EPS were *higher* in 2017 than 2016.
- Therefore, the EPS improvement was primarily driven by a significant increase in net income.
- Changes in numerator and denominator explain EPS changes arithmetically, but understanding business drivers requires additional analysis.
- Lesson 5 covers analytical tools to identify key factors influencing EPS changes.

2.06 Income Statement Ratios and Common-Size Analysis

Common-Size Analysis of the Income Statement

- **Purpose:**
  - Assess a company's performance over time or relative to peers by expressing each income statement line item as a percentage of revenue.
  - Removes size effects, enabling meaningful time-series and cross-sectional comparisons.
- **Illustration with Hypothetical Companies (Exhibit 18):**
  - Companies A and B each have USD 10 million sales; Company C has USD 2 million.
  - Operating profit in absolute terms: A (USD 2M), B (USD 1.5M), C (USD 0.4M).
  - Common-size statements show Company C and A have identical expense and profit percentages relative to sales.
  - Company C's operating profit margin (20%) exceeds Company B's (15%), despite lower absolute profits.

Panel A: Income Statements (USD)	**Company A**	**Company B**	**Company C**
Sales	10,000,000	10,000,000	2,000,000
Cost of sales	3,000,000	7,500,000	600,000
Gross profit	7,000,000	2,500,000	1,400,000
Selling, general, and administrative expenses	1,000,000	1,000,000	200,000
Research and development	2,000,000	–	400,000
Advertising	2,000,000	–	400,000
Operating profit	2,000,000	1,500,000	400,000

Panel B: Common-Size Income Statements (% of Sales)	**Company A**	**Company B**	**Company C**
Sales	100%	100%	100%
Cost of sales	30	75	30
Gross profit	70	25	70
Selling, general, and administrative expenses	10	10	10
Research and development	20	0	20
Advertising	20	0	20
Operating profit	20	15	20

Table 27: Income Statement for Three Hypothetical Companies: Panel A shows absolute amounts, Panel B shows common-size percentages.

- **Insights from Expense Patterns:**
  - Company A has much higher gross profit margin (70%) than Company B (25%).

- Company A spends more on research and development and advertising than Company B.
- These expenditures likely lead to technologically superior products and stronger brand awareness.
- Company B's lower gross margin may result from lower investment in R&D and advertising, possibly competing on price.
- Differences in strategies highlight importance of further research to understand implications for future performance.

- **Tax Comparison:**
  - Taxes are better compared to pretax income than to sales.
  - Effective tax rates can be examined from notes disclosures and used to project future net income.

- **Cross-Sectional Use:**
  - Vertical common-size analysis is useful for comparing companies in the same period or against industry/sector aggregates.
  - Data sources: peer companies, published industry data, or databases like Compustat.
  - Enables evaluating relative performance versus industry medians or peers.

- **Median Common-Size Income Statement Data (Exhibit 19):**

Sector	**Energy**	**Materials**	**Industrials**	**Cons. Disc.**	**Cons. Staples**	**Health Care**
# Observations	34	27	69	81	34	59
Gross Margin	37.7%	33.0%	36.8%	37.6%	43.4%	59.0%
Operating Margin	6.4%	14.9%	13.5%	11.0%	17.2%	17.4%
Net Profit Margin	4.9%	9.9%	8.8%	6.0%	10.9%	7.2%
Sector	**Financials**	**Info Tech**	**Telecom**	**Utilities**	**Real Estate**	
# Observations	63	64	4	29	29	
Gross Margin	40.5%	62.4%	56.4%	34.3%	39.8%	
Operating Margin	36.5%	21.1%	15.4%	21.7%	30.1%	
Net Profit Margin	18.5%	11.3%	13.1%	10.1%	21.3%	

Table 28: Median Common-Size Income Statement Statistics for the S&P 500 by GICS Sector, 2017

- **Source:** Compustat database; Operating margin based on EBIT.

Income Statement Ratios

- **Profitability Metrics:**

- **Net Profit Margin:**

$$\text{Net Profit Margin} = \frac{\text{Net Income}}{\text{Revenue}} \times 100\%$$

  Measures income generated per dollar of revenue; higher margin indicates better profitability.
- AB InBev's net profit margin based on continuing operations was 16.2% in 2017, up from 6.0% in 2016 but down from 22.9% in 2015.
- **Gross Profit Margin:**

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Revenue}} \times 100\%$$

  Measures gross profit earned per dollar of revenue; influenced by company strategy and product differentiation.
- AB InBev's gross profit margin was 62.1% (2017), 60.9% (2016), and 60.7% (2015), showing relative stability.

• **Interpretation:**
  - A higher net profit margin is generally more desirable.
  - Gross profit margin differences may reflect strategic choices such as product differentiation or cost control.
  - Increased operating expenses and finance costs in 2016 (post-merger with SABMiller) led to lower profitability despite stable gross margins.

• **Other Profitability Margins:**
  - Operating Profit Margin = Profit from operations / Revenue
  - Pretax Margin = Profit before tax / Revenue

• **Example: AB InBev's Margins (2015–2017)**

	2017		**2016**		**2015**	
	US dollars	**%**	**US dollars**	**%**	**US dollars**	**%**
Revenue	56,444	100.0	45,517	100.0	43,604	100.0
Cost of sales	(21,386)	(37.9)	(17,803)	(39.1)	(17,137)	(39.3)
Gross profit	**35,058**	**62.1**	**27,715**	**60.9**	**26,467**	**60.7**
Distribution expenses	(5,876)	(10.4)	(4,543)	(10.0)	(4,259)	(9.8)
Sales and marketing expenses	(8,382)	(14.9)	(7,745)	(17.0)	(6,913)	(15.9)
Administrative expenses	(3,841)	(6.8)	(2,883)	(6.3)	(2,560)	(5.9)
Portions omitted						
Profit from operations	**17,152**	**30.4**	**12,882**	**28.3**	**13,904**	**31.9**
Finance cost	(6,885)	(12.2)	(9,382)	(20.6)	(3,142)	(7.2)
Finance income	378	0.7	818	1.8	1,689	3.9
Net finance income/(cost)	(6,507)	(11.5)	(8,564)	(18.8)	(1,453)	(3.3)
Share of result of associates and joint ventures	430	0.8	16	0.0	10	0.0
Profit before tax	**11,076**	**19.6**	**4,334**	**9.5**	**12,461**	**28.6**
Income tax expense	(1,920)	(3.4)	(1,613)	(3.5)	(2,594)	(5.9)
Profit from continuing operations	**9,155**	**16.2**	**2,721**	**6.0**	**9,867**	**22.6**
Profit from discontinued operations	28	0.0	48	0.1	—	—
Profit of the year	**9,183**	**16.3**	**2,769**	**6.1**	**9,867**	**22.6**

Table 29: AB InBev's Margins: Abbreviated Common-Size Income Statement

- **Insights:**
  - Despite higher gross profits in 2016 than 2015, AB InBev's profitability decreased due to increased operating and finance costs.
  - The 2016 merger with SABMiller explains the revenue jump (from around USD 45B to USD 56B) and the rise in finance costs.
  - Common-size income statements and profitability ratios help identify such operational and financial impacts.