

Level I of the CFA® 2025 Exam

Study Notes - Financial Statements Analysis

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Learning Module 1: Introduction to Financial Statement Analysis

LOS 1a: describe the steps in the financial statement analysis framework

Financial analysis is the process of interpreting and evaluating a company's performance and position in the context of its economic environment. Analysts use financial analysis to make investment decisions and recommendations.

As a generic term, the financial statement analysis framework describes the process of assessing financial statements, supplemental information, and other sources of information. Essentially, the financial statement analysis framework helps analysts draw conclusions and make informed recommendations, such as whether to invest in a company or extend a loan.

Steps Involved in the Financial Statement Analysis Framework

The financial statement analysis framework involves six steps. These include:

Step 1: Articulate the Purpose and Context of the Analysis

This step guides further decisions about the approach, tools, data sources, and final report format. It also defines the target audience, end product, and timeframe. Further, it identifies the requisite resources and resource constraints. After this, the analyst should be able to compile the specific questions to be answered by the analysis.

The output from this step includes:

- Timetable and proposed budget
- Nature and content of the expected report
- A list of written or unwritten questions to be answered
- The stated objective of the analysis

Step 2: Collect Data

The analyst gathers the necessary data to answer the specific questions compiled in Step 1. The sources of information at this stage include:

- Financial statements, other financial data, questionnaires, and industry or economic data
- Company site visits
- Discussions with issuer investor relations, management, suppliers, customers, competitors, and company or industry experts.

At this step, the analysts should be able to produce output such as completed questionnaires where applicable and financial statements and other quantitative data, structures in a consumable form.

Step 3: Process Data

The analyst processes the data collected in step 2 using various analysis tools. This may involve computing financial ratios and growth rates, creating charts, preparing common-size financial statements, or performing statistical analyses such as regression analysis.

Step 4: Analyze and Interpret the Data

The analyst assesses the data processed in step 3. The analyst should be able to interpret the output of the analysis and use it to support a conclusion or recommendation. The results from this step include analytical results, forecasts, and valuations.

Step 5: Develop and communicate conclusions and recommendations:

The analyst should communicate the conclusion and recommendations derived from the analysis in an appropriate format that answers the questions posed in Step 1. The analyst uses analytical results and previous reports based on institutional guidelines to answer the questions posed in Step 1.

The format of communicating conclusions or recommendations depends on the analytical objectives, institution, audience, and requirements of the regulatory agencies or professional standards.

Step 6: Follow-up

The analyst should perform periodic reviews to determine if the initial conclusions and recommendations still hold. This may require a periodic repeat of all the previous steps.

Question

In which step of the financial statement analysis framework would performing sensitivity analysis *most likely* be involved?

- A. Follow-up.
- B. Processing data.
- C. Collecting input data.

Solution

The correct answer is **B**.

In the financial statement analysis framework, performing sensitivity analysis is most appropriately categorized under the step of "Processing Data." Sensitivity analysis is a technique used to assess the impact of changes in input variables on the outcome of a financial model. It involves varying key assumptions or parameters within the model to evaluate how these changes affect the results. This process is a part of data processing, as it involves manipulating and analyzing the collected data to gain deeper insights into the financial performance and risks associated with a company.

A is incorrect. "Follow-up" is concerned with reviewing the conclusions and recommendations of the analysis over time to ensure their continued validity. It does not involve the actual processing or analysis of data.

C is incorrect. "Collecting input data" involves gathering the necessary financial statements, economic data, and other relevant information required for the analysis. It precedes the processing of data and does not encompass the analytical techniques such as sensitivity analysis that are applied to the collected data.

LOS 1b: describe the roles of financial statement analysis

In financial statement analysis, analysts evaluate a company's financial reports, along with related information like financial notes and supplementary schedules. This assessment is crucial in evaluating the past, current, and potential performance and financial position of a company in order to make investment, credit, and other economic decisions.

- Valuating company securities.
- Debt rating
- Analyzing a potential merger or acquisition candidate
- Evaluating the Creditworthiness of a company

Generally, analysts aim to assess a company's current and past performance and financial position. Consequently, they can leverage these findings to shape future expectations regarding the company's financial position and performance, as well as factors impacting the risk profile of the company.

For instance, performance analysis can be used to determine if a company is profitable, adequately capitalized, able to meet its long and short-term obligations, and able to generate positive cash flows continuously.

Question

Which of the following *best* describes the role of financial statement analysis?

- A. To determine whether a company should close its operations.
- B. To provide information on a company's financial performance and position.
- C. To use a company's financial reports to evaluate its past, future, and potential performance.

Solution

The correct answer is **C**.

In financial statement analysis, a company's financial reports are used to evaluate its past, future, and potential performance.

A is incorrect because financial statement analysis does not only provide information on whether a business should close its operations, but also how profitable it is, its financial ratios, etc.

B is incorrect because it describes the role of financial reporting and not financial statement analysis.

LOS 1c: describe the importance of regulatory filings, financial statement notes and supplementary information, management's commentary, and audit reports.

Regulatory Authorities

Publicly traded issuers must prepare financial reports per specific securities laws and regulations and accounting standards as prescribed by regulatory authorities. Corporate reporting standards and securities regulations may differ in different jurisdictions. For this reason, the International Organization of Securities Commissions (IOSCO's) member jurisdictions oversee more than 95 percent of the world's financial markets, enabling global uniformity and promoting financial markets.

International Organization of Securities Commissions

The IOSCO was founded in 1983 and consists of affiliates, associates, and ordinary members. As mentioned, the IOSCO is technically not a regulatory authority but regulates more than 95 percent of the global financial capital markets. The International Organization of Securities Commission (IOSCO) consists of ordinary members, associate members, and affiliate members.

Specifically, the ordinary members are the securities commission tasked with securities regulations in the member countries. Some examples of ordinary members include the China Securities Regulatory Commission, the US Securities and Exchange Commission, the Egyptian Financial Supervisory Authority, the Securities and the Kingdom of Saudi Arabia Capital Market Authority. The ordinary member regulates 95 percent of the global financial capital markets in more than 115 countries.

IOSCO contains clearly defined Objectives and Principles of Securities Regulation, which are appropriately updated and act as the international benchmark for all markets. The securities regulation principles are based on three core objectives:

- Systemic risk reduction.

- Investor protection.
- Ensuring a fair, efficient, and transparent markets.

There are ten categories of IOSCO's principles, consisting of principles for regulators, for enforcement, for market integrity and efficiency, for collective investment schemes, for issuers, and others.

Regarding the principle for issuers, it is a category that contains two principles that are of interest in this topic and related to financial reporting:

1. Investors should have access to complete, accurate, and timely disclosures of financial results, risk, and other relevant information.
2. The quality of accounting standards issuers use to prepare financial statements should be high and internationally accepted.

Another IOSCO principle pertains to self-regulatory organizations (SROs), which directly oversee their competence areas. These organizations should be subject to oversight by the relevant regulator and adhere to principles of fairness and confidentiality.

US Securities and Exchange Commission

As an ordinary member of IOSCO, the US SEC oversees US securities markets and securities. The Securities and Exchange Commission was established in response to reforms after the 1929 stock market crash preceding the Great Depression.

Key statutes enforced by the SEC, such as the Securities Acts of 1933 and 1934 and the 2002 Sarbanes-Oxley Act, play a crucial role in financial reporting and analysis.

The 1933 Securities Act mandates the disclosure of financial and other essential information to investors during the sale of securities, forbids false statements, and necessitates the initial registration of all public securities offerings.

The 1934 Securities Exchange Act established the Securities and Exchange Commission (SEC), granted the SEC regulatory authority over the entire securities industry, and authorized the SEC

to mandate regular reporting from companies with publicly traded securities.

The 2002 Sarbanes-Oxley Act established the Public Company Accounting Oversight Board (PCAOB) to supervise auditors. The SEC implements the act's provisions and oversees the PCAOB. The act focuses on auditor independence by restricting auditors from providing specific non-audit services to their audit clients, enhances corporate accountability for financial reporting by requiring top management to affirm that the company's financial statements accurately represent its financial condition, and mandates management to evaluate and report on the effectiveness of the company's internal controls over financial reporting, including obtaining external auditor verification of the effectiveness of internal controls.

SEC regulations are primarily enforced by filing standardized forms and responding to SEC staff comments on company filings. Since SEC filings are typically made electronically, analysts can access filings online, such as those on an issuer's investor relations website or the SEC's website. The following are some filings commonly used by analysts:

- **Securities Offering Registration Statement:** Companies offering securities must file a registration statement. Previously registered companies and new issuers issuing new securities must file these statements. The specific form and information required vary by size and nature.
- **Forms 10-K, 20-F, and 40-F:** These forms have to be filed annually. US registrants file Form 10-K, some Canadian registrants file Form 40-F, and all other registrants file Form 20-F. Information on these forms must include the company's business, risks, financial disclosures, legal proceedings, and management.
- **Annual Report:** Annual reports are usually prepared by companies. The SEC does not require this. A company's annual report is one of the best ways to present itself to shareholders and other stakeholders.
- **Proxy Statement/Form DEF-14A:** Proxy voting involves a shareholder authorizing another party to vote on their behalf. Before a shareholder meeting, the SEC requires a proxy statement to be sent to shareholders.
- **Forms 10-Q and 6-K:** US companies must file these forms quarterly on Form 10-Q,

and non-US companies must file them semiannually on Form 6-K. The required information includes some financial information, such as unaudited financial statements and MD&A for the interim period covered by the report. Moreover, Form 10-Q should include certain non-recurring events, such as the start of significant litigation or adopting a new accounting policy.

Apart from the forms mentioned above, companies are required to make additional SEC filings if significant transactions or events have occurred between periodic filings. They include:

- **Form 8-K:** SEC registrants must report material and corporate events more frequently in addition to annual and interim reports. SEC Form 8-K (6-K for non-US registrants) is used to announce significant events and is referred to as the "current report."
- **Forms 3, 4,5, and 144:** Beneficial ownership of securities must be reported on Forms 3, 4, and 5. Those who own more than 10 percent of a class of registered equity securities, including directors and officers, are required to file these documents. Initial statements are on Form 3, changes are reported on Form 4, and annual reports are on Form 5. Form 144 is a notice of proposed sales of securities held by affiliates of the issuer and restricted securities. Analysts can use these forms to examine purchases and sales of securities to corporate insiders.
- **Form 11-K:** This is an annual stock purchase and savings report for employees. Those analysts interested in companies with significant employee benefit plans may find it helpful since it includes more information about these plans than disclosed by the company.

Capital Markets Regulation in Europe

In the European Union (EU), capital markets are primarily regulated by individual member states. However, the EU has established specific overarching regulations. Notably, since 2005, the EU has mandated that consolidated financial statements of companies listed in the EU adhere to International Financial Reporting Standards (IFRS).

The process for endorsing new IFRS standards reflects a balance between the autonomy of

member states and the need for cooperation and convergence. When the International Accounting Standards Board (IASB) issues a new standard, the European Financial Reporting Advisory Group provides advice to the European Commission, which is then reviewed by the Standards Advice Review Group. Based on their input, the Commission drafts an endorsement regulation, which is voted on by the Accounting Regulatory Committee. If the vote is favorable, the proposal advances to the European Parliament and the Council of the European Union for final approval.

Securities regulation within the EU is overseen by two key bodies established by the European Commission: the European Securities Committee (ESC) and the European Securities and Markets Authority (ESMA).

The ESC, composed of high-level representatives from member states, advises the European Commission on securities policy issues. On the other hand, ESMA acts as a cross-border supervisor to coordinate the regulation of EU markets.

In conclusion, despite the presence of these EU-wide bodies, the responsibility for securities regulation largely remains with individual member states, leading to variations in requirements for share registration and periodic financial reporting across countries.

Financial Statement Notes and Supplementary schedules

The financial statement notes, often referred to as footnotes, are a crucial component of regulatory filings, providing extensive disclosures that are essential for understanding the financial statements. The footnotes detail the basis of preparation, including the fiscal year alignment with the calendar year, the type of accounting standards, the types of currency, the rounding of figures, and whether the financial statements are consolidated (aggregate the financial records of all controlled subsidiaries after eliminating intercompany balances and transactions).

Furthermore, the notes disclose the accounting policies, methods, and estimates employed in preparing the financial statements. Both IFRS and US GAAP offer flexibility in choosing among alternative policies and methods for accounting for certain items, aiming to accommodate the

diverse needs of businesses in reporting various economic transactions. This flexibility, while necessary for companies to select the most relevant and fair policies, methods, and estimates for their unique economic environment, poses challenges for analysts due to reduced comparability across different companies' financial statements.

Additionally, notes disclosures include information on segment reporting, business acquisitions and disposals, contractual obligations (including both on- and off-balance sheet debt), financial instruments and risks arising from financial instruments, legal proceedings, related-party transactions, and subsequent events (post balance sheet events).

Generally, for most companies, financial notes and supplemental schedules typically provide explanatory information for every line item (or almost every line item) on the balance sheet and income statement.

Business and Geographic Segment Reporting

Most companies often consist of multiple businesses, and while IFRS and US GAAP do not mandate the provision of disaggregated full financial statements for all subsidiaries or businesses, they do require some disaggregated information in the financial statement notes by operating segment.

An operating segment is defined as a component of a company that:

- engages in activities that generate revenue and incur expenses, including start-up segments that have yet to earn revenues.
- its results are regularly reviewed by the company's senior management.
- has available discrete financial information.

A company must disclose separate information for any operating segment that meets specific quantitative criteria. Specifically, if the segment accounts for 10 percent or more of the combined operating segments' revenue, assets, or profit.

If the combined revenue from external customers for all reportable segments is less than 75

percent of the total company revenue, additional reportable segments must be identified until the 75 percent threshold is reached.

Small segments may be aggregated if they share a significant number of factors that define a business or geographical segment, or they may be combined with a similar significant reportable segment. Information about operating segments and businesses that are not reportable is aggregated in an "all other segments" category.

Companies are required to disclose the factors used to identify reportable segments and the types of products and services sold by each reportable segment. For each reportable segment, the following information should also be disclosed in the notes to the financial statements:

- Revenue, distinguishing between revenue to external customers and revenue from other segments.
- A measure of profit or loss.
- A measure of assets and liabilities (if the company's chief decision-making officer regularly reviews these amounts).
- Interest revenue and interest expense.
- Cost of property, plant, and equipment, and intangible assets acquired.
- Depreciation and amortization expense.
- Other non-cash expenses.
- Income tax expense or income.
- proportion of an investment's net profit or loss is accounted for under the equity method.

Companies must also prepare a reconciliation between the information of reportable segments and the consolidated financial statements based on segment revenue, profit or loss, assets, and liabilities.

Management Commentary

The Management Discussion and Analysis (MD&A) section is critical to a public company's annual report. A management commentary or management discussion and analysis report (MD&A) is usually included in a public company's annual reports. It is referred to by various names, including management reports, management commentary, and operating and financial reviews.

While the information in the MD&A is crucial, it is typically unaudited, except in some countries like Germany, where management reporting has been mandated and audited since 1931.

It provides a platform for management to discuss various aspects of the company, including its business operations, risk management strategies, planned capital expenditures, and future outlook. The MD&A is a valuable tool for understanding the financial statements and offers insights into the company's potential future performance.

The MD&A is a useful starting point for understanding the financial statements and can also provide critical insights into a company's potential future performance.

Management Commentary and Regulations

In regulatory filings such as Form 10-K and 10-Q in the United States, the MD&A section covers topics such as the nature of the business, past performance, and future prospects.

In the US, the Securities and Exchange Commission (SEC) mandates that publicly traded companies must supply a Management Discussion and Analysis (MD&A), which outlines the specifics of what this should include. It is incumbent upon the management to underscore any positive or negative trends and pinpoint crucial events and uncertainties that have an impact on the company's liquidity, capital resources, and operational outcomes.

The MD&A should also offer insights into the repercussions of inflation, price fluctuations, and other significant events and uncertainties that could lead to a substantial divergence between future operational results and financial status from the currently reported financial data. Furthermore, the MD&A should include details about obligations not recorded on the balance

sheet and about contractual commitments, such as obligations to make purchases.

Management is also expected to delve into the pivotal accounting policies that necessitate them to exercise subjective judgments and that exert a considerable influence on the financial results reported.

To enhance the quality of the MD&A, the International Accounting Standards Board (IASB) issued an IFRS Practice Statement titled "Management Commentary." This provides a framework for preparing and presenting management commentary, identifying five key content elements: the nature of the business, management's objectives and strategies, significant resources, risks and relationships, results of operations, and critical performance measures.

Auditor's Report

Companies' annual reports typically include financial statements that must be audited by an independent accounting firm, following specific auditing standards. The auditor provides a written opinion, known as the audit report, which may vary across jurisdictions but generally includes a statement of the auditor's opinion. Financial statement audits are often mandated by contractual agreements, laws, or regulations.

Objectives of an Audit

According to ISAs, the two primary objectives of an audit are:

- To provide reasonable (not absolute) assurance that financial statements are free from material misstatement. This, in essence, enables the independent auditor to express an opinion on whether or not the preparation of financial statements complied with a specified set of accounting standards.
- To report on the financial statements following the auditor's findings as required by the International Standards for Auditing.

Types of Audit Reports

When an independent auditor provides a written opinion on a company's financial statements, it is called an audit report.

The standard independent audit report usually has several paragraphs. To begin with, the first or "introductory" paragraph describes the financial statements and the responsibilities of management and the auditor. The second or "scope" paragraph describes the nature of the audit process and gives the basis for the auditor's expression about reasonable assurance. The third paragraph, "opinion," gives the auditor's assessment of the financial statements' fairness.

The audit opinion can take any one of the following forms:

- The **unqualified audit opinion** indicates that the financial statements are fairly presented under accounting standards.
- The **qualified audit opinion** indicates some limitation to the audit's scope or an exception to the accounting standards.
- The **adverse audit opinion** indicates that the independent auditor has determined that the financial statements are not fairly presented and materially depart from accounting standards.
- The **disclaimer of opinion** indicates that the auditor cannot issue an audit opinion for one reason or another.

Audit Standards and Practices

Audits are conducted under the International Standards on Auditing (ISAs), developed by the International Auditing and Assurance Standards Board (IAASB). These standards are widely adopted, although some countries, like the United States, have their own auditing standards. In the US, the Public Company Accounting Oversight Board (PCAOB) sets auditing standards for public companies following the Sarbanes-Oxley Act of 2002.

Audits are designed using sampling techniques and may involve estimates and assumptions. As a result, auditors provide reasonable, not absolute, assurance about the financial statements' accuracy. This means there is a high probability that the audited financial statements are free

from material error or fraud.

Key Audit Matters

For listed companies, the audit report includes a discussion of Key Audit Matters (international) or Critical Audit Matters (United States).

Key Audit Matters refer to issues that the auditor considers to be most important, such as those that have a higher risk of misstatement, involve significant management judgment, or report the effects of significant transactions during the period.

Critical Audit Matters refer issues that involve "especially challenging, subjective, or complex auditor judgment" and similarly include areas with a higher risk of misstatement or that involve significant management judgment and estimates.

Question

Information on a company's results of operations, planned capital expenditure, and future outlook is usually found in which of the following?

- A. Auditor's report.
- B. Management commentary.
- C. Notes to the financial statements.

Solution

The correct answer is **B**.

In a management commentary, a company's management discusses matters of concern to the company, such as the results of its operations, risk strategies employed, planned capital expenditure, and future outlook.

A and C are incorrect because they typically do not report this information.

LOS 1d: describe implications for financial analysis of alternative financial reporting systems and the importance of monitoring developments in financial reporting standards

The goal of global convergence has been advanced by adopting IFRS in many countries outside the US as the required financial reporting standard. However, several differences exist between US GAAP and IFRS that affect how companies report their financial statement. The following are the significant differences between US GAAP and IFRS.

Basis for Comparison	US GAAP	IFRS
Developed by	FASB	IASB
Basis	Rules	Principles
Inventory write-down reversal	Prohibited	Permissible if certain conditions are met
Valuation of inventory	LIFO, FIFO, and Weighted Average Method	Weighted Average Method and FIFO.
Development cost	Expensed	Capitalized if it meets the criteria for capitalization.
Interest paid	Cash flows from operating activities	Cash flows from operating or Cash flows from financing activities

Analysts comparing two companies that use different accounting standards must be aware of areas where accounting standards have not converged since reconciliation disclosures between IFRS and US GAAP are not required. It is often difficult to make the specific adjustments necessary to achieve comparability between financial statements prepared under different accounting standards without sufficient information.

Comparative financial measures generated under different accounting standards must be interpreted carefully by analysts, and significant developments in financial reporting standards need to be monitored, as these factors can affect company performance and security valuations in essential ways.

Monitoring Developments in Financial Reporting Standards

Analysts should monitor developments in financial reporting standards from a user perspective, not a preparer's perspective (like accountants). They need to understand the effect of these developments on financial reports. Analysts can stay informed about developments in financial reporting standards by keeping tabs on actions of standard setters, new products and transactions, and company disclosures of critical estimates and accounting policies.

New Types of Transactions or Products

There can be unusual or unique components to new products and types of transactions that are not explicitly outlined in the financial reporting standards. An economic event, such as a new business (e.g., fintech) or a new financial instrument, typically brings about new products or transactions. In addition to reviewing financial reports, analysts can monitor business journals and capital markets for new products and transactions.

When one company introduces something new, others in the industry tend to follow. To comprehend these novelties, it's crucial to understand their business purpose.

Evolving Standards

The delays between new product development and regulatory action make standard setters and regulators unlikely to identify new products and transactions. Nevertheless, monitoring the actions of these authorities is essential because regulatory changes can impact companies' financial reports and hence valuations. Market participants may ignore financial statement details when valuing a company's securities. In this case, more explicit identification could affect company securities' value. Further, it appears that management pays more attention to and is more rigorous in calculating/estimating items that appear in the financial statements than those in the notes.

The FASB and IASB publish information on proposed future standard changes and new standards on their websites. The input of financial analysts, especially those who regularly use financial statements, is used by the FASB and IASB when creating or changing standards. CFA Institute

actively supports improvements to financial reporting. In addition to drafting comment letters and position papers, volunteer members of the CFA Institute serve on various liaison committees that meet regularly to recommend proposed standards to FASB and IASB.

Question

Analysts are advised to monitor developments in financial reporting standards primarily from a:

- A. Preparer's perspective to ensure accurate implementation.
- B. Legal perspective to avoid regulatory discrepancies.
- C. User perspective to understand their impact on financial reports.

Solution

C is correct. Analysts monitor the development of financial reporting standards from a user perspective.

A and B are incorrect. Accountants monitor developments in financial reporting standards from a preparer's perspective.

LOS 1e: describe information sources that analysts use in financial statement analysis besides annual and interim financial reports

Analysts tend to base their financial statement analysis on the company's audited, annual financial statements to get a relatively accurate picture of its financial position and performance. In this case, the annual financial statements audit must have been done by an independent auditor. However, other important sources of information can be relied upon in this process to facilitate informed investment decision-making.

Information Sources Other Than Annual Financial Statements

Other than supplementary and annual financial statement information, financial statement analysis can be conducted using the information provided by a company in its annual report or other publicly available documents such as proxy statements. These sources can be grouped by origin:

I. Issuer Sources

- Earning calls: Issuers host earnings calls to discuss financial results via webcast or teleconference. Media, analysts, and investors are the primary audience for the calls. To sharpen their estimates, analysts ask probing questions to understand past actions and results.
- Presentations and events
- Press releases
- Speaking with other company personnel, investor relations, or management
- Company properties or websites analysts can visit as an investor or customers

II. Public Third-party Sources

- Free analyst reports or industry whitepapers
- Industry or economic indicators from the governments

- General and industry-specific news outlets
- Social media

III. Proprietary Third-party Sources

- Analyst communications and reports
- Data and reports from platforms such as FactSet
- Data and reports from industry-specific consultancies

IV. Proprietary Primary Research

- Product comparisons, surveys, and conversations are conducted directly or commissioned by an analyst

Economic, industry, and peer company information helps put a company's financial performance and prospects in perspective. An analyst's effectiveness depends largely on information from sources outside the company.

Question

Information sources for financial statement analysis can be categorized into different origins. Which of the following options represents an example of a “proprietary third-party source”?

- A. Earning calls hosted by the company.
- B. Data and reports from industry-specific consultancies.
- C. Conducting surveys and conversations commissioned by an analyst.

Solution

The correct answer is **B**.

Data and reports from industry-specific consultancies is an example of proprietary third-party source.

A is incorrect. This is an issuer source of information.

C is incorrect. This is proprietary primary research.

Learning Module 2: Analyzing Income Statements

LOS 2a: describe general principles of revenue recognition, specific revenue recognition applications, and implications of revenue recognition choices for financial analysis

Revenue is reported on the top line of the income statement. Accrual accounting allows revenue to be recognized, i.e., reported on the income statement when it is earned and not necessarily when cash is received.

Companies disclose their revenue recognition policies in the notes to their financial statements. Reviewing these policies to understand how and when a company recognizes revenue, especially compared with other companies, is useful.

General Principles of Revenue Recognition

The IASB and FASB released converged accounting standards in May 2014, introducing changes to revenue recognition principles. These standards are nearly identical, focusing on a principles-based approach applicable to various revenue-generating activities.

The converged standard asserts that revenue should be recognized to "depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services."

Based on the standard, recognition of revenue involves five steps:

Step 1: Identifying contracts with a customer

Based on the standard, a contract is a commitment and agreement with commercial substance between parties with established rights and responsibilities. A contract contains the obligations and rights of the parties involved and the payment terms. Notably, a contract exists only if collectability is probable. Both IFRS and US GAAP use the exact words while describing the standard. However, the description of probable collectability differs. In IFRS, "probable" implies more likely than not, and in US GAAP, it implies likely to occur.

Step 2: Identifying the separate or distinct performance obligations in the contract

Performance obligations are linked to the provision of distinct goods or services. A good or service is considered distinct if the customer can benefit from it independently or with easily accessible resources and if its transfer can be independently identified from other commitments in the contract. Each recognized performance obligation is treated individually in accounting.

Step 3: Determining the transaction price.

The transaction price is the amount the seller expects to receive to transfer the goods or services specified in the contract.

Step 4: Allocate the transaction price to the performance obligations in the contract

The price is then distributed across each identified performance obligation.

Step 5: Recognizing revenue upon performance obligation fulfillment.

Revenue is recognized when a performance obligation is met. The recognized amounts consider expectations regarding the likelihood of collection and, if relevant, the distribution across multiple obligations within the same contract.

Moreover, revenue should only be recognized when there is a high likelihood that it will not be reversed in the future. If there is a likelihood of reversal, the seller will record a minimal amount of revenue at the time of sale and recognize a refund liability and a "right to return goods" asset on the balance sheet, calculated as the carrying amount of the inventory minus any recovery costs.

The entity will recognize revenue when it can fulfill the performance obligation by transferring control of the good or service to the customer. Factors to consider when assessing whether the customer has obtained control include:

- The company has a right to payment.
- The customer has a legal claim to the asset.
- The customer has accepted the service or good.

- Significant rewards and risks of ownership have been transferred to the customer.
- The customer physically possesses the goods.

Completing the five steps for a contract with one obligation is easy. More complex contracts, such as those that are satisfied over time, are not as straightforward.

If no contingencies surround the payment, revenue and accounts receivable are recognized. However, if payment depends on an additional condition or obligation, a contract asset is recorded on the balance sheet until the condition or obligation has been met. If payment is made before the performance obligation is met, the seller records a contract liability.

IFRS 15 requires companies to disaggregate contracts with customers into different categories when disclosing revenue. Disclosure must also be made for balances related to any contract liability and assets.

Cases of Applying Revenue Recognition Standards

Case 1: Principal vs Agent

In cases where a company acts as principal (controls the product before it is delivered to the customer), revenue is recorded as the total amount received for the product transfer. On the other hand, if a company acts as an agent (facilitates the transfer of a product controlled by a third-party seller), the company should record revenue only for the portion of the payment that corresponds to its fee or commission.

Lastly, for companies operating as both the principal and the agent, an analyst would need to assess the relative proportion of principal versus agent sales to evaluate and forecast overall margins.

Case 2: Franchising or Licensing Companies

In the case of franchising companies (such as McDonald's), revenue recognition standards mandate that companies break down revenue from contracts with customers into categories that illustrate how the nature, amount, timing, and uncertainty of revenue and cash flows are influenced by economic factors. Companies must present disaggregated revenues in consolidated

income statements to fulfill this requirement.

For franchising companies, such disaggregated revenue items include owned stores or restaurants, franchise royalties, fees, and supply chain revenues.

Case 3: Software Services or License

Under IFRS 15, if a company grants a license to use software where the company will install the software on its system, the company will recognize revenue either over the term of the license or at the time the license is transferred.

Specifically, companies should spread out the revenue recognition from a software license over the duration of the license if, according to the contract or the company's usual operations:

- the software provider continues to perform significant activities that impact the software (such as updates or improvements),
- the customer's rights are affected by these activities, either positively or negatively, and
- these activities do not constitute a delivery of goods or services.

If these conditions are not satisfied, revenue should be recognized when the license is handed over to the customer.

Case 4: Long-Term Contracts

Consider a company that enters into long-term contracts spanning several years and that the performance obligations are fulfilled over time.

According to IFRS 15, a performance obligation is satisfied over time if it meets one of the following criteria:

- The customer immediately receives and utilizes the benefits provided by the entity's performance as it is carried out, such as in regular service agreements.
- The entity's performance leads to the creation or improvement of an asset that the customer controls as the asset is being created or enhanced. For example, renovating a

factory that the customer owns and controls.

- The entity's performance does not result in an asset that can be used for other purposes by the entity, and the entity has a legally enforceable right to payment for the work completed so far. For example, building a large, specialized asset that cannot easily be sold to another customer, such as a weapons system.

The company recognizes revenue from long-term contracts over the duration of the contract as work progresses, either through the production of products or the provision of services, due to the ongoing transfer of control to the customer.

Under IFRS 15, the degree of progress towards completion can be assessed using output methods such as appraisals or units completed or input methods such as costs incurred relative to estimated total costs.

The cost of sales is recorded as it occurs. The revenue reported is calculated by adding a proportional amount of the estimated profit to the cost of sales reported.

For instance, consider a manufacturing company with a 2-year contract with a buyer to deliver goods for USD 100 million for USD 70 million. In the first year, the company incurred USD 40 million in costs. In the first year, the company will recognize a revenue of USD 57.14 million ($= 40/70 \times 100$) and a profit of USD 17.14 million [$= 40/70 \times (100-70)$].

In the second year, the actual cumulative costs turned out to be USD 77 million. The company will recognize revenue of USD 42.86 million ($= 100 - 57.14$), cost of USD 37 million ($= 77 - 40$), and cumulative profit of USD 23 million.

Case 5: Companies with Bill and Hold Arrangements

Consider a company that manufactures products the customer may be unable to take possession of immediately due to constraints such as lack of storage. IFRS 15 stipulates that in a "bill and hold" arrangement, a company can ascertain when its performance obligation is fulfilled based on when the customer gains control of the product.

According to IFRS 15, this occurs when the following conditions are satisfied:

- There must be a substantial reason for the bill and hold arrangement (e.g., it is requested by the customer).
- The product must be distinctly identified as the customer's property.
- The product must be prepared for physical delivery to the customer.
- The entity cannot have the ability to use the product or to direct it to another customer.

Revenue Disclosure Requirements under IFRS 15

Under IFRS 15, the disclosure requirements are extensive to provide ample information to users of financial statements about the nature, amount, and timing of cash flows from customers. Some of the disclosures include:

- Companies must disclose revenue from contracts with customers, broken down into different categories of contracts. These categories could be based on factors such as product type, geographic region, customer type or sales channel, pricing terms of the contract, contract duration, or the timing of transfers.
- Companies must also disclose the balances of any assets and liabilities associated with contracts and significant changes in those balances, remaining performance obligations and the transaction price allocated to those obligations, and any significant judgments and changes in judgments related to revenue recognition.

Question

When should revenue be recognized according to the fundamental principle of accrual accounting?

- A. When the company delivers the goods or services.
- B. When the company receives cash for the goods or services.
- C. When the company decides to recognize it.

Solution

A is correct. The fundamental principle of accrual accounting states that revenue should be recognized when the company delivers the goods or services and the risk and reward of ownership are transferred.

LOS 2b: describe general principles of expense recognition, specific expense recognition applications, implications of expense recognition choices for financial analysis and contrast costs that are capitalized versus those that are expensed in the period in which they are incurred

The IASB Conceptual Framework defines expenses as reductions in economic benefits occurring throughout the accounting period. These reductions manifest as outflows or depletions of assets or the incurrence of liabilities, leading to a decrease in equity. Notably, this excludes reductions related to distributions to equity participants.

General Principles of Expense Recognition

Typically, a company records expenses when it uses up the economic benefits related to the expenditure or when it forfeits a previously recognized economic benefit. There are three prevalent models for recognizing expenses: the matching principle, immediate expensing upon incurring, and capitalization followed by gradual depreciation or amortization.

Matching Principle Model

In the matching approach, a company records expenses, such as the cost of goods sold, when the related revenues are recognized, thereby aligning expenses and revenues. These associated revenues and expenses arise directly and jointly from the same transactions or events.

Unlike a simple situation where a company buys inventory and sells all of it within the same accounting period, it is more common for some sales in the current period to come from inventory purchased in a previous period or periods. Similarly, it is likely that some inventory bought in the current period will remain unsold at the end of the period and will be sold in a subsequent period.

The matching approach requires that a company recognize the cost of goods sold in the same period as the revenues from the sale of those goods. It is important to note that IFRS does not explicitly refer to a "matching principle" but rather to a "matching concept" or a process that results in the "matching of costs with revenues."

Example: Applying Matching Principle

Anderson Merchandising Corporation (AMC), a hypothetical company, acquires inventory items to resell them. At the start of 20X2, AMC had no inventory in stock. Throughout 20X2, AMC engaged in the following transactions:

Inventory Purchases		
Quarter	Units	Cost per Unit
First quarter	2,500	USD38
Second quarter	1,800	USD39
Third quarter	2,000	USD42
Fourth quarter	2,300	USD44
Total	8,600	USD163

During the year, AMC sold 6,500 inventory units at USD48 per unit, receiving payment in cash. AMC established that 2,100 units of inventory were left over, with 2,000 units specifically identified as being bought in the fourth quarter and 100 units acquired in the third quarter.

Determine the revenue and expenses related to these transactions in 20X2 by identifying the specific inventory items sold or remaining in stock, assuming the company anticipates no product returns.

Solution:

The income for 20X2 would amount to USD312,000, calculated from the sale of 6,500 units at USD48 each. Initially, the overall cost of the acquired goods, totaling USD351,400, would be recorded as inventory (an asset). Throughout 20X2, the expense for the 6,500 units sold would be deducted (aligned with the revenue). In contrast, the expense for the remaining 2,100 units that were not sold would continue to be listed as inventory, as detailed below:

Cost of Goods Sold	
Source	Amount
From the first quarter	2,500 units at USD38 per unit = USD95,000
From the second quarter	1,800 units at USD39 per unit = USD70,200
From the third quarter	1,900 units at USD42 per unit = USD79,800
From the fourth quarter	300 units at USD44 per unit = USD13,200
Total cost of goods sold	USD258,200

Cost of Goods Remaining in Inventory	
Source	Amount
From the third quarter	100 units at USD42 per unit = USD4,200
From the fourth quarter	2,000 units at USD44 per unit = USD88,000
Total remaining (or ending) inventory cost	USD92,200

The cost of the goods sold would be expensed against the revenue of USD312,000 as shown below:

Item	Amount
Revenue	USD312,000
Cost of Goods Sold	USD258,200
Gross Profit	USD53,800

Immediate Expensing upon Incurring

Period costs (expenses less directly linked to revenue generation) are typically expensed as incurred, either when the company pays out cash or incurs a liability. These costs often include administrative, managerial, information technology (IT), research, and development expenses, as well as costs for maintaining or repairing assets.

For most companies, payroll expenses are treated as period costs, except for employees whose compensation is regarded as a product cost and recorded as inventory, subsequently becoming part of the cost of goods sold, or expenses like sales commissions, which are capitalized and systematically expensed or expensed alongside sales.

Capitalization followed by Gradual Depreciation or Amortization

Certain expenditures are initially recognized as assets on the balance sheet and typically manifest as an investing cash outflow on the statement of cash flows. Over the asset's useful life, these capitalized amounts are expensed as depreciation or amortization, reducing both net income and the asset's value on the balance sheet. As non-cash expenses, depreciation, and amortization impact the cash flow statement primarily through their effect on taxable income and taxes payable.

This approach aligns with the matching principle, where expenses are recognized on the income statement over the asset's expected useful life, ensuring that costs and benefits are matched. Capitalizing expenditures, instead of expensing them, generally results in higher reported cash from operations. Analysts should be vigilant for signs of companies manipulating reported cash flow from operations by capitalizing expenditures that ought to be expensed.

Capitalizing an expenditure boosts current profitability and reported cash flow from operations as long as capital expenditures exceed depreciation expenses. When analyzing performance, it's essential to consider the motivations behind capitalizing expenditures, such as meeting earnings targets for a specific period. Conversely, expensing a cost in the current period lowers immediate profits but enhances future profitability, contributing to a positive profit trend.

In environments where financial reporting and tax accounting methods are identical, expensing has a more favorable impact on cash flow due to lower taxes in the earlier period, creating an opportunity for interest income on the saved cash.

While it may not be feasible to identify individual instances of discretion in capitalizing or expensing expenditures, analysts can typically identify significant items treated differently across companies. The most relevant differences in expenditure treatment will vary by industry, highlighting the importance of industry-specific considerations in the analysis of capitalization practices.

Capitalization of Interest Costs

Companies typically capitalize interest costs for assets that require an extended period to prepare for their intended use. This accounting practice allows interest costs to be either capitalized on the balance sheet or expensed on the income statement. For assets constructed for the company's use, capitalized interest is included as part of the relevant long-lived asset on the balance sheet and is expensed over time through depreciation. In contrast, for assets constructed for sale, such as in the case of a real estate construction company, capitalized interest is included in the inventory and expensed as part of the cost of sales when the asset is sold.

The treatment of capitalized interest raises several considerations for analysts. Firstly, it affects

the categorization of cash flow, with capitalized interest appearing as part of investing cash outflows, while expensed interest typically reduces operating cash flow. Under US GAAP, interest is categorized in operating cash flow, whereas under IFRS, it can be categorized in operating, investing, or financing cash flows. Analysts may need to assess the impact on reported cash flows. Secondly, interest coverage ratios, which are indicators of solvency, measure the extent to which a company's earnings or cash flow cover its interest costs. Capitalized and expensed portions of interest expenditure should be considered in the calculations to assess a company's interest coverage. Additionally, if a company is depreciating interest capitalized in a previous period, income should be adjusted to eliminate the effect of that depreciation.

Overall, understanding the treatment of capitalized and expensed interest is crucial for accurately assessing a company's cash flows and solvency, particularly when analyzing interest coverage ratios and assessing compliance with covenant requirements in lending agreements.

Capitalization of Internal Development Costs

Accounting standards mandate capitalizing software development costs upon establishing product feasibility. However, variations arise due to judgment in feasibility assessment, leading to differing capitalization practices. Choosing to expense development costs instead of capitalizing them reduces current-period net income. This holds as long as current development expenses surpass amortization from prior capitalized costs, typical during cost escalation.

Opting for expense recognition for development costs lowers net operating cash flows and elevates net investing cash flows on the cash flow statement. Adjustments can align their financial performance when comparing companies like Microsoft (expenses development) to those capitalizing. Adjustments include (1) recognizing software development costs as expenses in the income statement, excluding prior years' amortization; (2) deducting capitalized software from the balance sheet (reducing assets and equity); and (3) reducing operating cash flows and cash used in investing on the cash flow statement by current-period development costs. Ratios involving income, assets, and cash flow-like return on equity-will also be influenced.

Implications for Financial Analysts: Expense Recognition

Similar to revenue recognition, a company's choice of expense recognition reflects its conservatism. Policies deferring expense recognition are less conservative. Expense items often require estimations impacting net income significantly. Analyzing financial statements and comparing companies necessitates understanding estimation variations and their potential influence.

For instance, substantial changes year-to-year in estimates like uncollectible accounts, warranty expenses, or asset valuable lives need scrutiny. Are changes due to operational shifts or manipulation for net income impact? When different industry companies exhibit contrasting estimates, the reasons behind the differences should be explored. Do these differences align with operational variations or signal manipulation?

Companies detail accounting policies and key estimates in financial statement notes and annual reports. Where possible, quantifying policy and estimation differences aid meaningful comparisons, adjusting reported expenses for comparability. If precise effects can't be calculated, assessing the relative conservatism qualitatively helps understand the impact on expenses and financial ratios.

Example: Effect of Capitalizing versus Expensing

Companies A and B have identical beginning-of-the-year book equity values and share the same tax rate. Throughout the year, both companies engage in similar transactions and report them in the same manner, with one exception. On 1 January of the new year, each company purchases a piece of machinery valued at EUR 500,000, which has a useful life of five years and a salvage value of EUR 0. Company A opts to capitalize the machinery and depreciate it using the straight-line method, while Company B chooses to expense the machinery immediately. The year-end data for Company A is presented in the table below.

Company A as of 31 December

Item	Value
Ending Shareholders' Equity	EUR 15,000,000
Tax Rate	25%
Dividends	EUR 0.00
Net Income	EUR 1,200,000

Based on the information in the table above, Company B's return on equity using year-end equity will be closest to:

Solution

Company B will have an additional EUR 400,000 of expenses (as of 31 December) compared with Company A. Company B expensed the machinery for EUR 500,000 rather than capitalizing the machinery and having a depreciation expense of EUR 100,000 like Company A. Company B's net income and shareholders' equity will be EUR 300,000 lower (= EUR 400,000 × 0.75) than that of Company A. As such, company B's ROE

$$\text{ROE} = \frac{\text{Net income}}{\text{Shareholders' Equity}} = \frac{\text{EUR } 900,000}{\text{EUR } 14,700,000} = 0.0612 = 6.12\%$$

Question

Why is understanding the treatment of capitalized interest important when analyzing financial statements?

- A. It affects the balance sheet items only.
- B. It has no impact on cash flow categorization.
- C. It influences both cash flow categorization and interest coverage ratios.

Solution

The correct answer is **C**

The treatment of capitalized interest impacts how interest costs are categorized in the cash flow statement and affect the calculation of interest coverage ratios. Both aspects are crucial in assessing a company's financial health and solvency.

A is incorrect. The treatment of capitalized interest also affects the income statement and cash flow statement. While it does impact the balance sheet by increasing the carrying amount of the asset to which the interest is capitalized, it also affects the income statement by reducing interest expense in the period the interest is capitalized. This, in turn, affects the calculation of interest coverage ratios.

B is incorrect. Capitalized interest does impact cash flow categorization. In the cash flow statement, interest paid is typically classified as an operating activity. However, when interest is capitalized, it is included in the investing section as part of the cash outflow for the acquisition of the asset. This reclassification affects the presentation of cash flows and can influence the analysis of a company's operating performance and investment activities.

LOS 2c: describe the financial reporting treatment and analysis of non-recurring items (including discontinued operations, unusual or infrequent items) and changes in accounting policies

When assessing a company's possible future performance, it is advisable to separate recurring and non-recurring items. Recurring items are items of income and expense likely to continue in the future, while non-recurring items (such as discontinued operations and unusual or infrequent items) are less likely to continue.

The effects of changes in accounting policies should also be considered when assessing a company's possible future performance. Changes in accounting policies can materially change how information is presented in the financial statements.

Other items that may be reported separately include unusual items, items that occur infrequently, and non-operating income.

Discontinued Operations

Under IFRS and US GAAP, a company must separately report the impact of discontinued operations on its income statement. Discontinued operations refer to parts of the business that the company has either already disposed of or plans to dispose of, with no future involvement expected.

Discontinued operations are considered separate both physically and operationally, and their results are presented at the bottom of the income statement on a net basis, including per share figures. The other sections of the income statement, such as revenue, cost of goods sold, and earnings per share from the ongoing businesses, represent the outcomes of continuing operations and are reported accordingly.

On the balance sheet, assets and liabilities associated with the discontinued operations are grouped and listed as held for sale. This distinction allows analysts to more clearly assess the financial performance of continuing versus discontinued operations. Since discontinued operations will no longer contribute to the company's earnings or cash flow after their disposal,

analysts may exclude them when projecting the company's future financial performance after a specific date.

Unusual or Infrequent Items

Since December 15, 2015, US GAAP has mandated that items of a material nature that are either unusual or infrequent, or both, should be distinctly presented within a company's continuing operations. An example of such an item is the expenses related to a company's restructuring, such as plant closure costs and employee severance payments.

IFRS also emphasizes the importance of separately disclosing items that are significant or essential for understanding an entity's financial performance. Items that are unusual or infrequent are likely to fit these criteria. For instance, gains or losses from the sale of assets or business segments at a value different from their book value are disclosed separately on the income statement, as these transactions are considered part of regular business activities.

Highlighting the unusual or infrequent nature of these items aids analysts in evaluating the probability of their recurrence, aligning with the IFRS requirement to disclose items that are pertinent to understanding an entity's financial performance.

In forecasting future operations, analysts should consider whether the reported items are likely to reoccur and their potential impact on future earnings. It is generally not recommended to simply overlook all unusual items.

Changes in Accounting Policies

Companies may need to change accounting policies due to new standards issued by standard setters. These changes can be applied either prospectively, meaning for future periods, or retrospectively, meaning restating financial statements as though the new policy had always been in place. For example, the new revenue recognition standard allowed companies to use a "modified retrospective" approach, where they didn't need to revise previously reported financial statements but adjusted opening balances of retained earnings and other relevant accounts for

the cumulative impact of the new standard.

In some instances, changes in accounting policies, such as switching from one acceptable inventory costing method to another, are required. Unless impractical, these changes should generally be applied retrospectively. The financial statement notes should explain and justify the change.

Apart from policy changes, companies sometimes adjust accounting estimates, like the useful life of a depreciable asset. These changes are handled prospectively, affecting only the financial statements for the period of the change and future periods. Prior statements are not adjusted, and the change is not highlighted on the income statement's face. Significant changes in estimates should be disclosed in the notes.

Additionally, companies may need to correct errors from previous periods. This is done by restating the financial statements for the prior periods presented in the current financial statements.

Changes in Scope and Exchange Rates

In a case where an issuer acquires a controlling interest in another company, the financial statements are consolidated from the acquisition's closing date. The relative size of the acquired company can significantly affect the comparability of the acquirer's financial results and position in previous periods.

Moreover, fluctuations in exchange rates can influence the income statements of multinational corporations, impacting reported revenues. Although accounting standards do not require the disclosure of the effects of changes in scope or exchange rates on financial statements, many issuers provide summary information, such as revenue and earnings per share growth rates excluding these changes, in management reporting or other documents.

Question

Which of the following statements is *most likely* accurate?

- A. Changes in accounting policies should always be applied prospectively.
- B. Unusual or infrequent items should be presented separately in a company's continuing operations.
- C. An analyst should include discontinued operations in assessing a company's future financial performance.

Solution

The correct answer is **B**.

Unusual, infrequent, or items that fall in both categories are presented separately as part of a company's continuing operations.

A is incorrect. Changes in accounting policies do not always have to be applied prospectively. They can also be applied retrospectively. In fact, unless it is impractical to do so, it is preferred that changes in accounting policies are reported through retrospective application.

C is incorrect. Analysts should exclude discontinued operations from assessing a company's future financial performance.

LOS 2d: describe how earnings per share is calculated and calculate and interpret a company's basic and diluted earnings per share for companies with simple and complex capital structures including those with antidilutive securities

Both IFRS and US GAAP mandate the presentation of earnings per share (EPS) on the income statement, specifically for net profit or loss (net income) and profit or loss (income) from continuing operations. The method of calculating EPS varies, contingent on whether the company possesses a simple or complex capital structure.

Simple vs. Complex Capital Structures

A company's capital is made up of its equity and debt. Certain equity types have priority over others, and some debt along with other instruments can be converted into equity.

According to IFRS, the equity type for which earnings per share (EPS) is calculated is known as ordinary equity. Ordinary shares are those that rank below all other equity types. Essentially, ordinary shareholders are the company's owners—the equity holders who are last in line to be paid in a company liquidation and who stand to gain the most when the company performs well.

Under US GAAP, this ordinary equity is called common stock or common shares, reflecting the terminology used in the US. We will use the terms "ordinary shares," "common stock," and "common shares" interchangeably, at least for this matter.

A company is said to have a complex capital structure if it has issued any financial instrument potentially convertible into common stock (or ordinary shares). Examples of these financial instruments include convertible bonds, convertible preferred stock, and employee stock options. The company is said to have a simple capital structure if its capital structure does not include such potentially convertible financial instruments.

Financial instruments that are potentially convertible into common stock could dilute or decrease EPS due to an increase in ordinary shares after conversion. The EPS that results from the conversion of all dilutive financial instruments is called diluted EPS.

Basic EPS describes EPS that does not involve the conversion of dilutive financial instruments. It is calculated using the reported earnings available to common shareholders of a company and the weighted average number of outstanding shares.

Companies are required to report both basic and diluted EPS.

Basic EPS

Basic EPS is the amount of income available to common shareholders divided by the weighted average number of common shares outstanding over a period. In this case, income that is accessible to ordinary shareholders is the net income left over after any preferred dividends have been distributed.

Basic EPS is computed as follows:

$$\text{Basic EPS} = \frac{\text{Net income} - \text{Preferred dividends}}{\text{Weighted average number of shares outstanding}}$$

Where:

'net income - preferred dividends'- amount of income available to common shareholders,

'weighted average number of outstanding shares' - time weighting of outstanding common shares.

Example: Calculating Basic EPS

For the fiscal year ending on December 31, 2020, Fisher Enterprises reported a net income of USD 3,400,000. The company declared and paid USD 300,000 in dividends on preferred stock. The company's common stock share information is presented in the following table:

Shares outstanding on January 1, 2020	1,200,000
Shares issued on March 1, 2020	300,000
Shares repurchased (treasury shares) on September 1, 2020	(150,000)
Shares outstanding on December 31, 2020	1,350,000

The company's basic earnings per share (EPS) for the year is *closest to*:

Solution

The first step is to calculate the weighted average number of shares outstanding based on the duration each share quantity was outstanding:

$$1,200,000 \text{ shares} \times (2 \text{ months}/12 \text{ months}) = 200,000$$

$$1,500,000 \text{ shares} \times (6 \text{ months}/12 \text{ months}) = 750,000$$

$$1,350,000 \text{ shares} \times (4 \text{ months}/12 \text{ months}) = 450,000$$

$$\text{Weighted average number of shares outstanding} = 1,400,000$$

As such, Fisher Enterprise's Basic EPS is:

$$\begin{aligned}\text{Basic EPS} &= \frac{\text{(Net income - Preferred dividends)}}{\text{Weighted average number of shares}} \\ &= \frac{\text{(USD 3,400,000 - USD 300,000)}}{1,400,000} \\ &= \text{USD 2.21}\end{aligned}$$

Diluted EPS

Note that when a company has a simple capital structure (lacks any financial instruments that could potentially dilute earnings), its basic earnings per share (EPS) will be the same as its diluted EPS. On the other hand, if the company possesses financial instruments that could dilute earnings, its diluted EPS might vary from its basic EPS. By definition, diluted EPS is always equal to or less than basic EPS.

We shall consider three potential categories of dilutive financial instruments diluted EPS:

1. Convertible preferred stock,
2. Convertible debt, and
3. Employee stock options.

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

Calculation of diluted EPS, whenever a company has outstanding convertible preferred stock, is done using the if-converted method. The if-converted method looks at the effect of converting the convertible preferred shares at the beginning of the period.

Note that conversion of convertible shares results in a higher weighted average number of outstanding shares and a higher net income available to common shareholders than in the basic EPS calculation because, due to conversion, the company will no longer pay preferred dividends.

Therefore, the formula for calculating diluted EPS using the if-converted method for preferred stock is given as follows:

$$\text{Diluted EPS} = \frac{\text{Net Income}}{(\text{Weighted average number of outstanding shares} + \text{New common shares that would have been issued at conversion})}$$

Example: Calculating Diluted EPS using the If-Converted Method (Convertible Preferred Stock)

As of December 31, 2022, a hypothetical company Vista Utilities reported a net income of USD 2,250,000. Over the year, the company had an average of 600,000 shares of common stock outstanding, 25,000 shares of convertible preferred stock, and no other potentially dilutive financial instruments. Each share of preferred stock pays an annual dividend of USD 12 and is convertible into 6 shares of Vista Utilities' common stock.

Vista Utilities' basic and diluted earnings per share (EPS) are *closest to*:

Solution

Should the 25,000 shares of convertible preferred stock be converted, Vista Utilities would issue an additional 150,000 shares of common stock (6 shares of common for each of the 25,000 shares of preferred).

Without the conversion, the company would not need to disburse preferred dividends totaling USD 300,000 (25,000 shares of preferred at USD 12 per share). Therefore, the company's basic EPS would be USD 3.25, and its diluted EPS would be USD 2.81, as illustrated in the modified

table:

	Basic EPS	Diluted EPS Using If-Converted Method
Net income	USD2,250,000	USD2,250,000
Preferred dividend	-300,000	0
Numerator	USD1,950,000	USD2,250,000
Weighted average number of shares outstanding	600,000	600,000
Additional shares issued if preferred converted	0	150,000
Denominator	600,000	750,000
EPS	USD3.25	USD3.00

Diluted EPS: If-Converted Method (Convertible Debt Outstanding)

Calculation of diluted EPS, whenever a company has a convertible outstanding debt, is also done using the if-converted method. In other words, Diluted EPS is determined under the assumption that convertible debt was converted into equity at the start of the period. If the conversion of debt to equity had occurred, there would no longer be any outstanding debt securities but rather a greater number of common stock shares. Moreover, had this conversion happened, the company would not have incurred interest expenses on the convertible debt, thereby boosting the net income available to common shareholders by the interest expense amount after taxes.

As such, the formula for calculating diluted EPS using the if-converted method for convertible debt is given by:

$$\text{Diluted EPS} = \frac{(\text{Net Income} \\ + \text{After-tax Interest on Convertible Debt} \\ - \text{Preferred Dividends})}{(\text{Weighted Average Number of Outstanding shares} \\ + \text{Additional Common Shares that would have been} \\ \text{Issued at Conversion})}$$

Example: Calculating Diluted EPS using the If-Converted Method (Convertible Debt Outstanding)

For the fiscal year concluding on December 31, 2022, a hypothetical company TechGenix Limited

reported a net income of USD 825,000. The firm had a weighted average of 780,000 shares of common stock outstanding. The company's potential dilutive securities include USD 60,000 of 5 percent convertible bonds, which are convertible into a total of 15,000 shares of common stock. With a tax rate of 25 percent, compute the basic and diluted earnings per share (EPS) for TechGenix Limited.

Solution

Consider the following table:

	Basic EPS	Diluted EPS Using If-Converted Method
Net income	USD 825,000	USD 825,000
After-tax cost of interest		USD 2,250
Numerator	USD 825,000	USD 827,250
Weighted average number of shares outstanding	780,000	780,000
If converted	0	15,000
Denominator	780,000	795,000
EPS	USD 1.06	USD 1.04

The diluted EPS in the above table is calculated as:

$$\begin{aligned}
 \text{Diluted EPS} &= \frac{\text{(Net Income} \\
 &\quad + \text{After-tax Interest on Convertible Debt} \\
 &\quad - \text{Preferred Dividends)}}{\text{(Weighted Average Number of Outstanding shares} \\
 &\quad + \text{Additional Common Shares that would have been} \\
 &\quad \text{Issued at Conversion)}} \\
 &= \frac{825,000 + ((1 - 0.25) \times 0.05 \times 60,000) - 0}{780,000 + 15,000} \\
 &= \frac{825,000 + (0.75 \times 0.05 \times 60,000)}{795,000} \\
 &= \frac{825,000 + 2,250}{795,000} \\
 &= \frac{827,250}{795,000} \\
 &= 1.04
 \end{aligned}$$

Note that If the convertible bonds were converted, the bond liability would cease to exist, and instead, TechGenix Limited would have an additional 15,000 shares of common stock

outstanding. Also, if the bonds were converted, the company would save on interest payments of USD 3,000 (5 percent of USD 60,000), increasing the net income for common shareholders by USD 2,250 after taxes [= USD 3,000 × (1 - 0.25)].

Diluted EPS: The Treasury Stock Method

When a company possesses financial instruments like stock options or warrants, the computation of diluted earnings per share (EPS) assumes these instruments are exercised, and the company utilizes the proceeds from this exercise to buy back as many shares of its common stock as it can at the period's average market price.

Consequently, the diluted EPS calculation adjusts the weighted average number of shares outstanding, increasing it by the net amount of shares issued upon the exercise of the instruments minus the shares that could be bought back with the exercise proceeds. Under US GAAP, this approach is referred to as the treasury stock method, as it often leads to companies holding the repurchased shares as treasury stock. Although not explicitly named, IFRS employs the same technique for such calculations.

Generally speaking, in determining diluted EPS with this technique, the hypothetical exercise of these financial instruments is presumed to result in:

- the company receiving cash in return for issuing new shares upon the exercise.
- the company utilizing the cash gained to buy back shares at the period's weighted average market price.

As such, the formula to calculate diluted EPS using the treasury stock method for options is given as:

$$\text{Diluted EPS} = \frac{\text{(Net Income} - \text{Preferred Dividends})}{\text{Weighted Average Number of Outstanding Shares}} + (\text{New Shares that would have been purchased with Cash Received upon Exercise} - \text{Shares that could have been purchased with cash received upon exercise} \times \text{Proportion of year during which the Financial Instruments were Outstanding})$$

Example: Calculating Diluted EPS using the If-Converted Method (Treasury Stock)

Method)

A hypothetical company, Advanced Robotics Inc. disclosed a net profit of USD1.5 million for the fiscal year ending December 31, 2023, with an average of 950,000 ordinary shares outstanding throughout the year. At the fiscal year's start, Advanced Robotics had issued 25,000 warrants with a strike price of USD40 each. No other convertible financial instruments were present. During the year, the average market value of the firm's stock was USD60 per share.

The basic and diluted earnings per share (EPS) for the company are *closest to*:

Solution

Applying the treasury stock method, we compute that the exercise of all warrants would have generated USD1 million (USD40 for each of the 25,000 warrants). These warrants would not be open; instead, the company would have an additional 25,000 shares in circulation. The treasury stock method assumes that the company would use the proceeds from the warrant exercises to buy back shares at the average market price. With the USD1 million from the warrant exercises, Advanced Robotics could repurchase 16,667 ($=1,000,000/60$) shares at USD60 each. Thus, the incremental share count is 8,333 (25,000 original warrants less 16,667 shares repurchased). The diluted EPS calculation does not adjust the numerator. The new figures reveal that the basic EPS for Advanced Robotics was USD1.58, while the diluted EPS was USD1.55.

To represent this numerically, you could use a similar table format:

	Basic EPS	Diluted EPS Using Treasury Stock Method
Net Income	USD 1,500,000	USD 1,500,000
Numerator	USD 1,500,000	USD 1,500,000
Weighted average number of shares outstanding	950,000	950,000
If converted	0	8,333
Denominator	950,000	958,333
EPS	USD 1.58	USD 1.57

Note that the diluted EPS above is calculated as:

$$\begin{aligned}
 \text{Diluted EPS} &= \frac{\text{(Net Income} - \text{Preferred Dividends})}{\text{Weighted Average Number of Outstanding Shares}} \\
 &\quad + (\text{New Shares that would have been purchased with Cash Received upon Exercise}) \\
 &\quad - (\text{Shares that could have been purchased with cash received upon exercise}) \\
 &\quad \times (\text{Proportion of year during which the Financial Instruments were Outstanding}) \\
 &= \frac{\text{USD } 1,500,000 - 0)}{950,000 + [(25,000 - 16,667) \times 1]} = 1.57
 \end{aligned}$$

Dilutive versus Anti-dilutive Securities and Implications for EPS Calculation

Dilutive securities are those financial instruments that are potentially convertible into common stock and could potentially dilute or decrease EPS due to the increase in the number of ordinary shares after conversion.

In contrast, some potentially convertible securities are anti-dilutive. This means their inclusion in the EPS calculation would result in higher diluted EPS than the company's basic EPS. Under both IFRS and US GAAP, however, these anti-dilutive securities are excluded from the calculation of diluted EPS.

As a rule, diluted EPS should always be less than or equal to basic EPS. Besides, it should reflect the maximum potential dilution from the conversion of potentially dilutive financial instruments.

Example: Showing the Antidilutive Effect

A company has a net income of \$2,000,000, an average of 250,000 shares of common outstanding stock, and 10,000 shares of convertible preferred stock. Each preferred share pays a dividend of \$13 per share and is convertible into one share of the company's stock. What is the company's basic and diluted EPS?

Solution

$$\text{Basic EPS} = \frac{\text{Net income} - \text{Preferred dividends}}{\text{Weighted average number of shares outstanding}}$$

$$\begin{aligned}
 \text{Net income} - \text{Preferred dividend} &= \$2,000,000 - 10,000 \times \$13 \\
 \text{Net income} - \text{Preferred dividend} &= \$2,000,000 - \$130,000 = \$1,870,000
 \end{aligned}$$

Therefore,

$$\text{Basic EPS} = \frac{\$1,870,000}{250,000} = \$7.48$$

Diluted EPS calculation using the equation:

$$\text{Diluted EPS} = \frac{\text{Net Income}}{(\text{Weighted average number of outstanding shares} + \text{New common shares that would have been issued at conversion})}$$

If each convertible preferred stock is converted into one share, then, under the if-converted method, the company has an additional $10,000 \times 1 = 10,000$ common outstanding stock, and no preferred dividend would be paid.

Therefore,

$$\text{Diluted EPS} = \frac{\$2,000,000}{(250,000 + 10,000)} = \$7.69$$

Given that this value is greater than the basic EPS of \$7.48, the convertible preferred shares are said to be anti-dilutive. As such, the effect of their conversion would be excluded from the diluted EPS calculation. As a result, Diluted EPS = Basic EPS = \$7.48.

Question

If, at the end of its financial year, a company has a net income of \$10 million, 2,000,000 shares of common outstanding stock, and no preferred stock or convertible financial instruments, which of the following is accurate?

- A. The company has a simple capital structure with a basic EPS of \$5.00.
- B. The company has a complex capital structure with a diluted EPS of \$5.00.
- C. The company has a complex capital structure with a diluted EPS of less than \$5.00.

Solution

The correct answer is A.

The company has a simple capital structure given that it does not have any potentially convertible financial instrument and has a basic EPS of $\$10,000,000 / 2,000,000$ shares = \$5.00.

LOS 2e: evaluate a company's financial performance using common-size income statements and financial ratios based on the income statement

Conversion of the income statement to a common-size income statement facilitates an assessment of a company's performance across time periods (time series analysis) and across companies (cross-sectional analysis).

Common-size analysis of the income statement is performed by stating each line item on the income statement as a percentage of revenue. Benefits of common-sizing the income statement include:

- It allows for meaningful comparison between companies concerning the percentage of expenses and profit relative to sales; and
- It highlights any differences that may exist between company strategies. For example, the difference between the ratio of gross profit to sales for two companies may lead to more research being done to understand the underlying reasons for the difference and their implications for the future performance of the companies.

Profitability describes one aspect of a company's financial performance. Financial ratios and common-size income statements can assist in measuring profitability aside from offering quick insights into changes in a company's financial performance.

Several financial ratios can assist in measuring profitability. The net and gross profit margins are two ratios that may be found through common sizing of the income statement.

Income Statement Ratios

Net Profit Margin

A company's return on sales or net profit margin measures the income generated for each dollar of revenue. In the form of an equation:

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

A higher level of net profit margin indicates a higher level of profitability.

Gross Profit Margin

The gross profit margin is another measure of profitability which is calculated as follows:

$$\text{Gross profit margin} = \frac{\text{Gross profit}}{\text{Revenue}}$$

Where gross profit = revenue minus the cost of goods sold.

As the equation indicates, the gross profit margin measures the gross profit a company generates for each dollar of revenue. Like in the case of the net profit margin, a higher gross profit margin indicates a higher level of profitability.

Question

The table below provides summary financial data for a company for the periods ended December 31, 2015, and December 31, 2016.

	December 31, 2016	December 31, 2015
Revenue	2,500,000	1,700,000
Cost of goods sold	1,200,000	600,000
Net profit	950,000	250,000

Which of the following statements is *most* accurate?

- A. The company's net profit margin was the same in both years.
- B. The company's gross profit margin in 2016 was higher than in 2015.
- C. The company's gross profit margin in 2015 was higher than in 2016.

Solution

The correct answer is C.

The gross profit margin was higher in 2015 than in 2016, given that

$$\text{Gross profit margin in 2015} = \frac{(\$1,700,000 - \$600,000)}{\$1,700,000} = 64.71\%$$
$$\text{Gross profit margin in 2016} = \frac{(\$2,500,000 - \$1,200,000)}{\$2,500,000} = 52.00\%$$

A is incorrect because the net profit margin in 2015 = $\frac{\$250,000}{\$1,700,000} = 14.71\%$

B is incorrect because the gross profit margin was higher in 2015 than in 2016, as previously calculated.

while net profit margin in 2016 = $\frac{\$950,000}{\$2,500,000} = 38\%$. Therefore, the net profit margin is not the same in both years.

Learning Module 3: Analyzing Balance Sheet

LOS 3a: explain the financial reporting and disclosures related to intangible assets

Intangible assets are **non-monetary assets** without physical substance. They are identifiable, which implies that they are either separable (capable of being separated and sold, transferred, licensed, rented, or exchanged) or arise from contractual or other legal rights. Examples include patents, trademarks, copyrights, and goodwill. However, it's important to note that goodwill is **not** separately identifiable.

Intangible Assets Reporting

Under IFRS, intangible assets may be reported either using the cost or revaluation model (in the presence of an active market). In the cost model, an asset is carried at its cost less any accumulated amortization and any accumulated impairment losses.

On the other hand, in the revaluation model, an asset is carried at a revalued amount, being its fair value at the date of revaluation less any subsequent accumulated amortization and any subsequent accumulated impairment losses. The revaluation model is chosen if there exists an active market for an intangible asset.

The US GAAP permits intangible assets to be measured using only the cost model.

Useful Life and Amortization of Intangible Assets

A company assesses whether its intangible assets' useful life is finite or indefinite. Indefinite life implies that the asset has no foreseeable limit to the period over which the asset is expected to generate net cash inflows for the entity. On the other hand, having a finite life implies an intangible asset has a limited period of benefit to the entity.

Based on the useful life information, impairment and amortization principles apply as follows:

- Finite useful life intangible assets are amortized on a systematic basis over the best

estimate of their useful life. The useful life estimate and amortization should be reviewed at least annually.

- An intangible asset with a finite useful life has a similar impairment principle to PP&E.
- Indefinite useful life intangible assets are not amortized. A review of the reasonableness of assuming an indefinite useful life and asset impairment testing is done at least annually.

Valuation and Analysis

Traditionally, financial analysts approach the reported values of intangible assets, especially goodwill, with a degree of skepticism. As a result, when evaluating financial statements, some analysts choose to disregard the book value of intangibles, thereby lowering net equity by a corresponding amount to achieve a "tangible book value" and adjusting pretax income to account for any associated amortization expenses or impairments.

It is generally not recommended to assign a zero value to intangibles arbitrarily; rather, analysts should individually assess each intangible asset to determine if any adjustments are warranted. Disclosures in the notes regarding intangible assets can offer valuable insights to analysts, including details about their useful lives, amortization methods and rates, and any recognized or reversed impairment losses.

Additionally, a company may possess internally developed intangible assets that are only recognized under specific conditions. There may also be assets that never appear on the balance sheet because they are not easily identifiable, and the company lacks adequate control over its future economic benefits. Examples of these assets include the management and technical skills of employees, market share, brand recognition, and a strong customer reputation.

Although not recorded on the balance sheet, these assets are valuable and theoretically reflected in the market price of the company's equity securities and the potential sale price of the company's equity in an acquisition. In the event of a sale, these assets may be classified as goodwill by the acquiring entity.

Identifiable Intangibles

According to IFRS, identifiable intangible assets are recorded on the balance sheet when there is a likelihood that they will bring future economic benefits to the company and when their cost can be reliably determined.

Identifiable intangible assets, such as patents, trademarks, copyrights, franchises, licenses, and other rights, can be either internally developed within the company or purchased by the company.

Internally Created Identifiable Intangibles

Establishing the value of internally developed intangible assets can be challenging and open to interpretation. Consequently, under both IFRS and US GAAP, the standard practice is to expense internally created identifiable intangibles instead of including them on the balance sheet.

Under both IFRS and GAAP, the treatment of internally generated intangible assets involves strict criteria that must be met for an asset to be recognized on the balance sheet. This recognition process is separated into two phases: the research phase and the development phase.

The research phase involves endeavors to acquire new knowledge or develop new products. Following this, the development phase takes place, which is focused on the design and testing of prototypes and models.

IFRS

Under IFRS, the treatment of internally generated intangible assets is slightly different. IAS 38, which is the standard governing intangible assets under IFRS, requires that all costs incurred in the research phase be expensed as incurred. However, costs incurred in the development phase of an internally generated intangible asset may be capitalized if, and only if, an entity can demonstrate all of the following:

- The technical feasibility of completing the intangible asset so that it will be available for use or sale.
- Its intention to complete the intangible asset and use or sell it.
- Its ability to use or sell the intangible asset.
- How the intangible asset will generate probable future economic benefits.
- The availability of adequate technical, financial, and other resources to complete the development and to use or sell the intangible asset.
- Its ability to measure reliably the expenditure attributable to the intangible asset during its development.

US GAAP

Under U.S. GAAP, the costs incurred during the research phase and the development phase of an internally generated intangible asset are typically expensed as incurred. Capitalizing such costs is **prohibited**.

The following categories of expenses are expensed under US GAAP (as well as under IFRS):

- Internally created mastheads, brands, customer lists, and publishing titles.
- Training cost.
- Start-up cost.
- General overheads and administration costs.
- Promotion and advertising.
- Reorganization and relocation expenses.
- Redundancy and termination costs.

Acquired or Purchased Intangibles

Unlike internally generated intangibles, acquired or purchased intangible assets are capitalized and recorded as distinct identifiable intangibles, provided they originate from contractual rights such as licensing agreements, other legal rights such as patents or can be separated and sold such as customer lists.

Question

McGill Corp. has been developing a product for the past five years, but they lack the funds to finish the product and start its sale. Which of the following would be the *most appropriate* action to take under IFRS.

- A. Capitalize all costs related to the development of the product.
- B. Expense the costs related to the development of the product.
- C. Do nothing.

Solution

The correct answer is **B**.

Since the company lacks the ability to complete the product, they have failed to meet the criteria necessary to capitalize the product as an intangible asset; thus, the cost will be expensed to the income statement.

LOS 3b: explain the financial reporting and disclosures related to goodwill

When a company acquires another, the acquisition price is allocated to all identifiable assets (both tangible and intangible) and liabilities based on their fair value. If the acquisition price exceeds the fair value of these identifiable assets and liabilities, the surplus is recognized as goodwill on the balance sheet.

The acquirer may be willing to pay more to purchase a company than the fair value of the target company's identifiable assets net of liabilities for the following reasons:

- Factors not reflected in the acquiree's financial statements, such as its reputation, established distribution system, and trained employees.
- The target company's research and development efforts may have created value even if they haven't resulted in a separately identifiable asset.
- The acquisition might bring strategic advantages or synergies, like cost-saving opportunities.

The recognition of goodwill in financial statements is a topic of debate. Proponents argue that goodwill represents the present value of future excess returns expected from the acquisition, similar to the valuation of other assets based on future cash flows. Opponents, however, contend that acquisition prices are frequently based on overly optimistic expectations, leading to future write-downs of goodwill.

Distinguishing Accounting and Economic Goodwill

Economic goodwill pertains to intangible aspects that enhance a business' value beyond the total of its tangible assets and liabilities. These factors encompass brand recognition, customer loyalty, employee morale, management expertise, and relationships with suppliers. Economic goodwill reflects a business's capacity to generate profits in the future beyond the expected returns on its tangible and intangible assets. Unlike accounting goodwill, economic goodwill doesn't appear on the balance sheet. It's typically assessed based on the company's market

value, representing the price an investor is willing to pay above its book value.

Accounting goodwill, on the other hand, is related to accounting standards and is reported only when an acquisition is involved. Both IFRS and US GAAP require capitalizing accounting goodwill that arises from acquisitions. It is, however, not amortized. Instead, it is tested for impairment on an annual basis. Impairment losses are charged against income in the current reporting period and result in the reduction of current earnings and total assets. Accounting goodwill must be disclosed in the financial statements with detailed notes explaining changes in the goodwill balance, methodology, and assumptions used for impairment testing.

The following steps are used to recognize goodwill, as required by the accounting standards:

Step 1: Determine the total cost to purchase the target company (the acquiree).

Step 2: Measure the target's identifiable net assets at fair value. The liabilities and contingent liabilities of the acquired company are assessed at their fair value. The net identifiable assets acquired are determined by calculating the difference between the fair value of the identifiable assets and the fair value of the liabilities and contingent liabilities

Step 3: The goodwill is the excess of (I) the cost to purchase the target company over (II) the net identifiable assets acquired. Occasionally, a bargain purchase occurs, and any gain from the bargain purchase is recognized in the profit and loss statement.

Sometimes, a transaction may involve acquiring net identifiable assets whose value exceeds the purchase cost. This type of transaction is referred to as a "bargain purchase." The gain resulting from a bargain purchase is recorded in the profit and loss statement in the period it occurs.

Disclosures Regarding Goodwill

Companies must also provide disclosures that allow users to assess the characteristics and financial impact of business combinations. These disclosures include, among others, the fair value of the total acquisition cost on the acquisition date, the amounts recognized for each significant class of assets and liabilities at the acquisition date, and a qualitative explanation of the elements contributing to the recognized goodwill.

Challenges and Adjustments in Goodwill Valuation

Despite existing accounting standards, analysts should note that fair value estimates are heavily reliant on management's discretion. Valuing intangible assets, like computer software, can be challenging during acquisition analysis. This discretion in valuation impacts both present and future financial statements, as identifiable intangible assets with fixed lives undergo amortization. However, goodwill and identifiable intangible assets with indefinite lives are not subject to amortization but are subject to annual impairment tests.

The recognition and impairment of goodwill can greatly influence the comparability of financial statements across companies. As a result, analysts frequently modify companies' financial statements by eliminating the effects of goodwill. These adjustments typically involve:

- **Excluding goodwill from balance sheet data:** This involves removing goodwill from total assets, equity, and other relevant balance sheet items before calculating financial ratios. This approach helps in analyzing a company's financial position and performance based on its tangible assets and equity.
- **Excluding goodwill impairment losses from income data:** This involves adding back the goodwill impairment losses to the net income before analyzing operating trends. This approach helps in examining a company's operating performance without the distortion caused by the non-cash expense of goodwill impairment.

Question

Which of the following is *least* likely correct regarding accounting goodwill?

- A. Amortized.
- B. Capitalized.
- C. Tested annually for impairment.

Solution

The correct answer is A.

Accounting goodwill is not amortized. Instead, it is tested at least annually for impairment under both GAAP and IFRS. This means that the carrying value of goodwill is compared to its recoverable amount, and an impairment loss is recognized if the carrying amount exceeds the recoverable amount.

LOS 3c: explain the financial reporting and disclosures related to financial instruments

According to the IFRS, a **financial instrument** is a contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another.

Financial assets include investments in stocks of other companies or in notes, bonds, or other fixed-income securities issued by other companies or government entities. Financial liabilities, such as notes payable and bonds payable issued by the company, will be covered later.

Certain financial instruments can be categorized as either an asset or a liability based on the contractual terms and current market conditions. For example, derivatives are financial instruments whose value is determined by an underlying factor, such as an interest rate, exchange rate, commodity price, security price, or credit rating, and typically require minimal or no initial investment.

Recognition and Measurement of Financial Instruments

Financial instruments are typically recognized when the entity enters into the contract's terms. Following the initial acquisition, financial instruments are measured using either **fair value** or **amortized cost**.

Recall that fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly market transaction. On the other hand, the amortized cost of a financial asset (or liability) is the amount at which it was initially recognized, minus any principal repayments, plus or minus any amortization of discount or premium, and minus any reduction for impairment.

Financial Assets Measurement at Amortized Cost

Under IFRS, financial assets are measured at amortized cost if their cash flows are fixed and occur on specific dates, comprising solely principal and interest payments, and if the business model is to hold the asset until maturity. Under the US GAAP, financial assets measured at

amortized cost are described as **held-to-maturity** assets. An example is a long-term bond investment issued by another company or government; its value may fluctuate with interest rate changes, but if classified as held-to-maturity, it will be recorded at amortized cost on the investor's balance sheet.

Other financial assets measured at amortized cost are loans to other companies.

Financial Assets Measured at Fair Value

For financial instruments measured at fair value, there are two primary methods for recognizing net changes in fair value:

1. as profit or loss on the income statement, or
2. (2) as other comprehensive income (loss), which does not affect the income statement.

These alternatives pertain to unrealized changes in fair value, meaning changes in the value of a financial asset that has not been sold and is still held at the end of the period. These unrealized gains and losses are also known as holding period gains and losses. In contrast, realized gains or losses from a sale are reported on the income statement.

1. As Other Comprehensive Income (or Loss)

Under IFRS, financial assets are measured at fair value through other comprehensive income (meaning any unrealized holding gains or losses are recorded on other comprehensive income) if the business model aims to both collect contractual cash flows and sell the financial assets. This IFRS category is relevant to debt investments, which have cash flows on specified dates and consist solely of principal and interest. Additionally, IFRS allows for equity investments to be measured at fair value through other comprehensive income if a company makes an irrevocable choice to measure the asset in this way at the time of acquisition.

Under the US GAAP, financial assets measured at fair value are referred to as **available-for-sale**. It applies the same concept as IFRS in that any unrealized gains or losses are recognized in other comprehensive income. However, unlike IFRS, the US GAAP category for available-for-sale securities is limited to debt instruments and does not extend to equity investments.

2. As Profit or Loss on the Income Statement

Under IFRS, financial assets that do not fall into the other two measurement categories are measured at fair value through profit or loss, meaning unrealized gains or losses are recognized in the income statement. Additionally, companies can choose to irrevocably classify a financial asset in this category at the time of acquisition.

In contrast, under US GAAP, all equity investments except those that provide significant influence over the investee are measured at fair value, with unrealized gains or losses reported in the income statement. For debt securities, those designated as **trading securities** are also measured at fair value with unrealized gains or losses recognized in the income statement. Trading securities are those acquired with the intention to sell rather than hold for collecting interest and principal payments.

Summary of Measurement of Financial Assets

Sure, here is the table formatted to match the original number of words per line:

Measurement at Amortized Cost	Fair Value through Other Comprehensive Income	Fair Value Through Profit and Loss
- Debt instruments intended for hold-to-maturity. - Receivable loans and notes. - Non-quoted equity instruments (cost used as an estimate for fair value in certain situations).	- Debt securities categorized as "available-for-sale" (US GAAP); debt instruments for which the strategy involves both earning from interest and principal and selling the security (IFRS). - Equity investments for which a firm chooses this measurement method at acquisition (IFRS only).	- All equity securities, except those providing the investor with significant influence (US GAAP only). - "Trading" debt securities (US GAAP). - Securities not allocated to either of the other two categories, or investments for which a firm chooses this measurement method at acquisition (IFRS only).

Question

A financial asset is classified as "available for sale," and it has unrealized gains. How are these unrealized gains *most likely* reflected in shareholders' equity?

- A. There is no recognition.
- B. They are recognized in the income statement.
- C. They are recognized in other comprehensive income statement.

Solution

The correct answer is **C**.

Gains for financial assets classified as available for sale are recognized in the other comprehensive income.

A is incorrect. Under both IFRS and US GAAP, unrealized gains on financial assets classified as "available for sale" are recognized. They are not ignored or left unrecognized in the financial statements.

B is incorrect. Unrealized gains on "available for sale" financial assets are not recognized in the income statement. Instead, they are recognized in other comprehensive income, which is a separate component of shareholders' equity, until they are realized (e.g., when the asset is sold). Only at that point are they transferred from other comprehensive income to the income statement as realized gains.

LOS 3d: explain the financial reporting and disclosures related to non-current liabilities

Non-current liabilities refer to all liabilities that are not classified as current. Common types of non-current liabilities are long-term financial liabilities and deferred tax liabilities.

Long-Term Financial Liabilities

Common types of long-term financial liabilities are bank loans and fixed-income securities issued to investors, such as notes or bonds payable.

These liabilities, including loans payable and bonds payable, are typically reported at amortized cost on the balance sheet. When a bond reaches maturity, its amortized cost (carrying amount) will match its face value.

Examples: Illustrating Reporting of Long-Term Liabilities

Bonds Issued at par value: if a corporation issue bonds worth USD 8,000,000 at face value, they are recorded as a long-term liability of USD 8 million. From the issuance date to the maturity date, the carrying amount (amortized cost) remains at USD 8 million.

Bonds issued at a discount: if a company issues bonds worth USD 8,000,000 at 98 percent of face value (at a discount), the bonds are recorded as a liability of USD 7,840,000 ($= \frac{8,000,000}{100} \times 98$) at the issuance date. Throughout the bond's life, the discount of USD 160,000 ($= 8,000,000 - 7,840,000$) is amortized, so the bond will be reported as a liability of USD 8,000,000 at maturity. Similarly, any bond premium would be amortized for bonds issued at a price above par value.

In some situations, liabilities like company-issued bonds are reported at fair value. These situations include financial liabilities held for trading, derivatives that are liabilities for the company, and certain non-derivative instruments, such as those hedged by derivatives.

Deferred Tax Liabilities

Deferred tax liabilities arise from temporary differences in timing between taxable income (company's reported income for tax purposes) and its reported income (reported income for financial statement purposes). In other words, deferred liabilities occur when the taxable income and the corresponding income tax payable are less than the reported financial statement income before taxes and the related income tax expense.

Deferred tax liabilities represent the amounts of income taxes that will be payable in future periods due to taxable temporary differences. Recall that the deferred tax asset is a prepaid tax created when unearned revenue is included in taxable income earlier than in reported income.

Typically, deferred tax liabilities emerge when certain expenses are recognized in taxable income earlier than in the financial statement net income leading to taxable income that is less than income before taxes in earlier periods, and thus resulting in taxes payable based on taxable income being less than the income tax expense based on accounting income before taxes. The difference between taxes payable and income tax expense creates a deferred tax liability.

For instance, deferred tax liability may occur when companies apply accelerated depreciation methods for tax purposes and straight-line depreciation methods for financial statement purposes. Additionally, deferred tax liabilities can also arise when some income is included in taxable income in later periods, such as undistributed profits from a company's subsidiary that have not yet been taxed.

Question

Which of the following is *least likely* a way through which deferred tax liabilities may arise?

- A. A company has prepaid its taxes.
- B. Including profits from subsidiaries have not yet been distributed and not taxed yet at later periods.
- C. Some expenses are included in taxable income in earlier periods than for financial statement net income.

Solution

A is correct. If a company has prepaid its taxes, this will result in a deferred tax asset.

B and C are incorrect. Both these scenarios will result in a deferred tax liability.

LOS 3e: calculate and interpret common-size balance sheets and related financial ratios

Examining a company's balance sheet can reveal information about its liquidity and solvency at the time the balance sheet is prepared, as well as the economic resources under the company's control. Recall that liquidity is defined as the company's ability to meet its short-term financial commitments. In other words, analysis of liquidity concentrates on the company's ability to liquidate assets into cash to cover operating expenses.

On the other hand, solvency refers to a company's ability to meet its financial obligations over the longer term. As such, solvency emphasizes the company's financial framework and its capacity to service long-term debts.

The main tools of analyzing balance sheets are common-size analysis and balance sheet ratios.

Common-Sizing the Balance Sheet

Common-size balance sheets are valuable for analyzing the composition of a company's balance sheet both over time (time-series analysis) and in comparison with other companies within the same industry (cross-sectional analysis).

Two primary methods for common-sizing the balance sheet are vertical common-size analysis and horizontal common-size analysis.

The vertical common-size analysis states each balance sheet item as a percentage of total assets. In contrast, the horizontal common-size analysis reflects quantities on the balance sheet regarding a base-year value of choice. However, the vertical common-size analysis is the more popular of the two methods.

Example: Vertical Common-size Analysis (Time-Series Analysis)

Assets	Dec 31, 2016 (\$)	Common? size balance- sheet (%)
Current Assets		
Cash and cash equivalents	100,000	0.8
Short-term marketable securities	1,234,678	9.7
Accounts receivable	52,000	0.4
Inventory	1,170,356	9.2
Total current assets	2,557,034	20.0
Property, plant, and equipment	6,834,190	53.6
Intangible assets	3,370,041	26.4
Total assets	12,761,265	100.0
Liabilities and shareholders' equity		
Current liabilities		
Accounts payable	3,825,396	30.0
Total current liabilities	3,825,396	30.0
Bonds payable	3,771,894	29.6
Total liabilities	7,597,290	59.5
Total shareholders' equity	5,163,975	40.5
Total liabilities and shareholders' equity	12,761,265	100.0

An analysis of data in the table above reveals that property, plant, and equipment, at 53.6%, make up the lion's share of the company's assets. The company does not have much cash and cash equivalents (0.8%), and most of its debt is in the form of accounts payable (30.0%). Also, there is no working capital as current assets (20.0%) are less than current liabilities (30.0%).

Example: Vertical Common-size Analysis (Cross-Sectional Analysis)

Emma Stone is analyzing two companies in the electronics industry to assess their financial health as shown on their balance sheets. She has prepared the following vertical common-size balance sheets for Sony and Panasonic (hypothetical values):

	Sony	Panasonic
ASSETS:	31 March 2023	31 March 2023
Current assets:		
Cash and cash equivalents	6.2	4.5
Short-term marketable securities	12.7	48.0
Accounts receivable	5.3	9.1
Inventories	1.5	1.2
Other current assets	3.9	2.5
Total current assets	29.6	65.3
Long-term marketable securities	47.1	3.0
Property, plant, and equipment, net	10.2	10.5
Goodwill	2.0	15.2
Acquired intangible assets, net	0.8	4.5
Other assets	25.3	2.9
Total assets	100.0	100.0
LIABILITIES AND SHAREHOLDERS' EQUITY:		
Current liabilities:		
Accounts payable	14.0	3.5
Short-term debt	3.5	4.0
Current portion of long-term debt	1.8	0.5
Accrued expenses	7.2	2.9
Deferred revenue	2.1	13.5
Other current liabilities	0.0	2.7
Total current liabilities	28.6	27.1
Long-term debt	26.5	32.4
Deferred revenue non-current	0.9	4.6
Other non-current liabilities	11.2	7.5
Total liabilities	67.2	71.6
Total shareholders' equity	32.8	28.4
Total liabilities and shareholders' equity	100.0	100.0

Based on the common-size balance sheet data for Sony and Panasonic, what insights can be drawn about the liquidity, cash, and marketable securities, accounts receivable, inventories, and capital structure of these two companies?

Solution

Liquidity: Both companies have a significant portion of their assets in current assets, indicating liquidity. Sony has 29.6% of its assets in current assets, while Panasonic has a higher proportion at 65.3%. This suggests that Panasonic might have a better ability to meet short-term obligations compared to Sony.

Cash and Marketable Securities: Sony has a higher percentage of cash and cash equivalents (6.2%) compared to Panasonic (4.5%). However, Sony has a lower allocation in short-term marketable securities (12.7%) than Panasonic (48.0%). This indicates that Panasonic is holding more liquidity in cash, while Sony is investing more in short-term securities.

Accounts Receivable: Panasonic has a higher percentage of accounts receivable (9.1%) compared to Sony (5.3%), which could imply that Panasonic extends more credit to its customers or takes longer to collect payments.

Inventories: Both companies have a small portion of their assets in inventories, with Sony at 1.5% and Panasonic at 1.2%, suggesting efficient inventory management.

Capital Structure: The total liabilities to total assets ratio differs between the two companies, with Sony having 67.2% and Panasonic having 71.6%. This indicates that Panasonic has a higher level of leverage compared to Sony, suggesting a greater reliance on debt financing in its capital structure.

Shareholders' Equity: Sony has a slightly higher proportion of shareholders' equity (32.8%) compared to Panasonic (28.4%), suggesting that Sony has a slightly stronger equity position.

Balance Sheet Ratios

Ratio analysis can assist with the conduct of time series and cross-sectional analysis of a company's financial position. Balance sheet ratios are those ratios that involve balance sheet items only. In a vertical common-size balance sheet, each line item represents a ratio, as it expresses a balance sheet figure as a percentage of total assets. Additionally, other balance sheet ratios are used to compare one balance sheet item to another.

Balance ratios are classified into: (i) liquidity ratios, which measure a company's ability to meet short-term obligations; and (ii) solvency ratios, which measure financial risk, financial leverage and a company's ability to satisfy its long-term and other obligations.

Liquidity Ratios

Ratio Name	Calculation	Indication
Current Ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$	A company's ability to meet its short-term obligations
Quick Ratio (Acid Test)	$\frac{\text{Cash} + \text{Marketable securities} + \text{Receivables}}{\text{Current liabilities}}$	It satisfies the same purpose as the current ratio but is considered a stricter measure as inventory is excluded.
Cash Ratio	$\frac{\text{Cash} + \text{Marketable securities}}{\text{Current liabilities}}$	Test a company's ability to meet its short-term obligations using highly liquid assets.

Solvency Ratios

Ratio Name	Calculation	Indication
Long term debt-to-equity	$\frac{\text{Total long term debt}}{\text{Total equity}}$	Financial leverage and financial risk
Debt-to-equity	$\frac{\text{Total debt}}{\text{Total equity}}$	Financial leverage and financial risk
Total debt	$\frac{\text{Total debt}}{\text{Total assets}}$	Financial leverage and financial risk
Financial leverage	$\frac{\text{Total assets}}{\text{Total equity}}$	Financial leverage and financial risk

Issues with Ratio Analysis

The effectiveness of cross-sectional financial ratio analysis can be constrained by variations in accounting practices. Furthermore, comparability can be hindered by the lack of uniformity in a company's operational activities. To circumvent this limitation, diversified companies active in multiple industries can employ industry-specific ratios for distinct business segments can enhance comparison.

Conducting ratio analysis involves considerable judgment. One critical aspect of this judgment is recognizing the limitations of any given ratio. Additionally, it requires judgment to determine whether a ratio indicates a long-term trend or merely a short-term situation. For instance, a

drawback of the current ratio is its susceptibility to changes in end-of-period financing and operational decisions that can impact the amounts of current assets and liabilities

Question 1

The following balance sheet information is given for company XYZ.

Company XYZ Balance Sheet	
Assets	Dec 31, 2016(\$)
Current Assets	
Cash and cash equivalents	100,000
Short-term marketable securities	1,234,678
Accounts receivable	52,000
Inventory	1,170,356
Total current assets	2,557,034
Property, plant, and equipment (PPE)	6,834,190
Intangible assets	3,370,041
Total assets	12,761,265
Liabilities and shareholders' equity	
Current Liabilities	
Accounts payable	3,825,396
Total current liabilities	3,825,396
Bonds payable	3,771,894
Total liabilities	7,597,290
Total shareholders' equity	5,163,975
Total liabilities and shareholders' equity	12,761,265

The current ratio for company XYZ is *closest to*:

- A. 0.34.
- B. 0.67.
- C. 1.20.

Solution

The correct answer is **B**.

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{2,557,034}{3,825,396} = 0.67$$

Question 2

To convert a regular balance sheet into a common-size balance sheet, each line item is stated as a percentage of:

- A. Total assets.
- B. Total equity.
- C. Total liabilities.

Solution

The correct answer is A.

Making a common-size balance sheet requires stating each line item as a percentage of total asset.

Learning Module 4: Analyzing Statements of Cash Flows 1

LOS 4a: describe how the cash flow statement is linked to the income statement and the balance sheet

Financial statements are interconnected, each serving a unique function in providing detailed information about a company's financial activities. The four primary financial statements are:

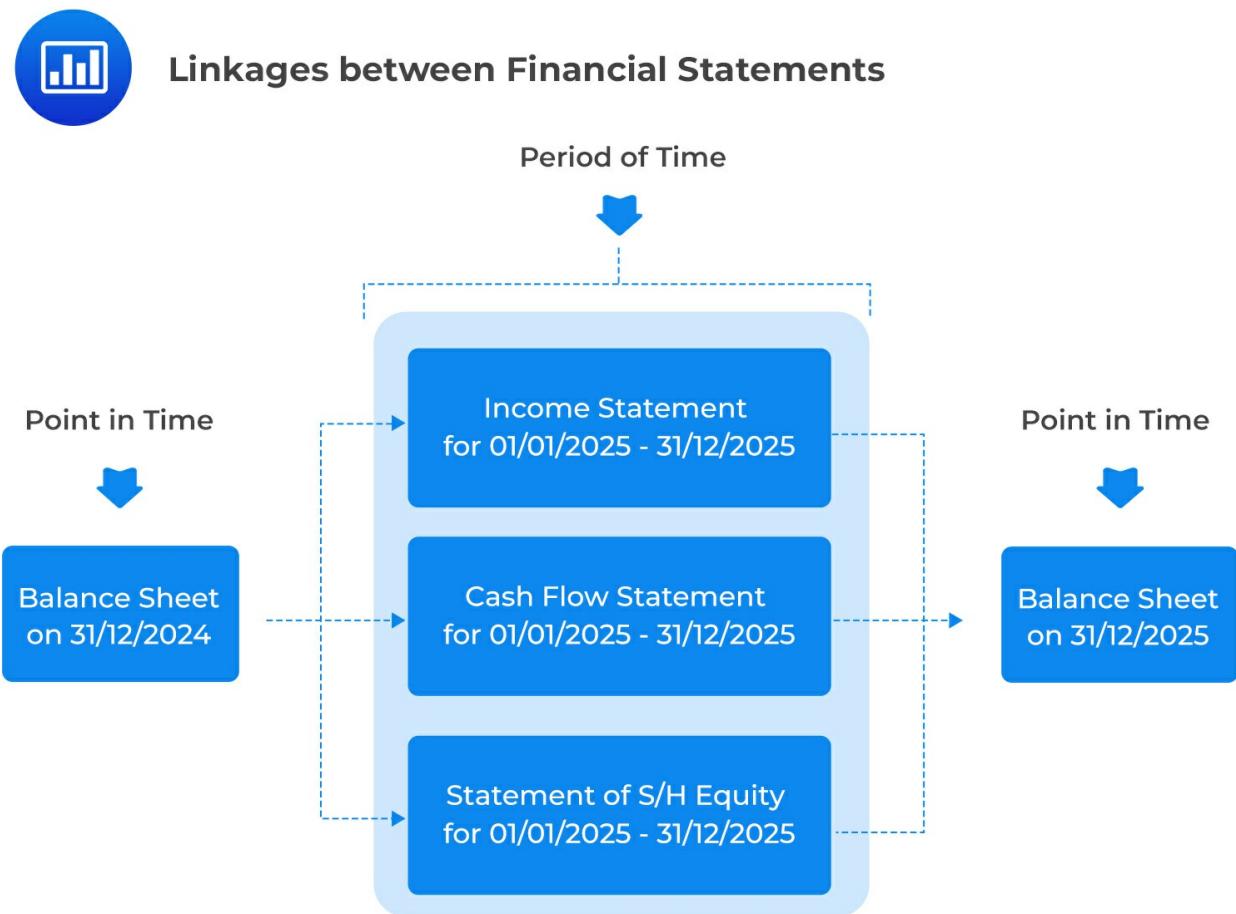
The four primary financial statements are interconnected, each serving a unique function in providing detailed information about a company's financial activities. These statements include:

- ***Balance Sheet:*** Captures the financial status of a company at a specific moment. It details the company's assets and how these assets are funded through liabilities and shareholders' equity, representing "permanent" or "stock" accounts.
- ***Income Statement:*** Shows the company's financial performance over a period, bridging two balance sheet dates. Comprising revenues, expenses, gains, and losses, the income statement differs from the balance sheet in that it records transactions over time, hence categorized as a "flow" statement. When prepared under IFRS or US GAAP, it utilizes accrual accounting, which means the reported figures may not directly correspond to cash transactions.
- ***Statement of Cash Flows:*** Outlines the changes in cash and cash equivalents, including restricted cash, from one balance sheet date to the next. It organizes cash movements into operating, investing, and financing activities, presenting a timeline of cash inflows and outflows, thus qualifying as another "flow" statement.
- ***Statement of Shareholders' Equity:*** Details changes in the company's equity between balance sheet periods. It lists key equity components, such as common stock and retained earnings as shown on the balance sheet, alongside descriptions of transactions that affected these components, like share issuance or the results of net income or losses. Similar to the income and cash flow statements, this is also considered a "flow" statement due to its focus on changes over time.

Understanding the linkages among the cash flow statement, income statement, and balance sheet is helpful in assessing a company's financial health and is instrumental in detecting accounting irregularities.

Linkages between Financial Statements

The balance sheet dates are linked by the income statement, cash flow statement, and the statement of shareholders' equity, as shown below:



For example, the beginning and ending balance sheet amounts of cash and cash equivalents are linked through the cash flow statement. Specifically, the statement of cash flows shows the change in the cash balance during the reporting period, according to the following equation:

Beginning cash balance + Cash inflows from operating, investing, and financing activities - Cash outflows from operating, investing, and financing activities = Ending cash balance

An example involving a statement of shareholders' equity involves the retained earnings, as shown below:

Beginning Retained Earnings (balance sheet item) + Net Income (Income statement item) - Dividends (cash flow item) = Ending Retained Earnings (balance sheet item)

Linkages Between Current and Current Liabilities

Current assets and current liabilities offer insights into a company's operational choices and activities. Discrepancies between accrual and cash accounting methods in recording these transactions often lead to increases or decreases in these short-term assets or liabilities. For instance, when revenues recognized on an accrual basis exceed actual cash receipts, accounts receivable will increase. Conversely, if expenses recognized accrue faster than cash is disbursed, this will likely result in a reduction in accounts payable or other accrued liabilities.

Furthermore, when a company receives payments in advance for services or products to be delivered in the future, it records the cash as an asset but also acknowledges a liability for the impending delivery, commonly known as deferred revenue. This liability is then removed from the books as revenue is recognized upon fulfilling the delivery obligations.

Additionally, a company's investing activities are generally associated with changes in the long-term assets section of the balance sheet, whereas financing activities typically impact the sections dealing with equity and long-term debt.

Generally, both the income statement and the statement of cash flows play crucial roles in linking the activities reflected in current assets and liabilities with the broader financial picture, demonstrating the interconnectedness of these financial statements in representing a company's fiscal health and operational efficiency.

For instance, the beginning and the ending accounts receivable are connected as follows:

Beginning Accounts Receivable + Revenue - Cash collected from customers = Ending Accounts

Receivable

Question

When computing the ending cash balance reported on the balance sheet, which of the following is *most likely* accurate?

- A. Cash receipts are subtracted from the beginning cash balance.
- B. Cash payments are subtracted from the beginning cash balance.
- C. Cash receipts and payments are added to the beginning cash balance.

Solution

The correct answer is B.

Cash payments are subtracted from the beginning cash balance in deriving the ending cash balance.

A is incorrect. Cash receipts are added to, not subtracted from, the beginning cash balance.

C is incorrect. Cash payments are subtracted from, not added to, the beginning cash balance.

LOS 4b: describe the steps in the preparation of direct and indirect cash flow statements, including how cash flows can be computed using income statement and balance sheet data

The first step in preparing the cash flow statement involves the determination of the total cash flows from operating activities. The cash flow from the operations section of the cash flow statement can be presented using either the direct or indirect method.

The direct method of cash flow presentation details the primary categories of gross cash receipts and cash disbursements, while the indirect method starts with net income and adjusts for non-cash transactions to reconcile to net cash flow from operating activities.

Note that the cash flows associated with investing and financing activities remain the same, regardless of whether the direct or indirect method is used for presenting operating cash flows.

Companies typically report operating cash flow using the indirect method, but understanding the components of this information allows you to deconstruct an indirect cash flow statement and reconstruct it into an approximate direct cash flow statement. Although this reconstructed statement may not be perfectly precise, it provides a useful alternative perspective.

Steps in Preparing Cash Flow from Operating Activities

While discussing the preparation of direct and indirect cash flow statements, we shall use the income statement and comparative balance sheet of a hypothetical tea processing company, Kenya Tea Development Agency (KTDA).

Exhibit A: Income Statement

KTDA Income Statement Year Ended 31 December 2023 (in '000)	
Revenue (net)	\$25,456
Cost of goods sold	\$11,345
Gross profit	\$14,111
Salary and wage expense	\$4,200
Depreciation expense	\$1,100
Other operating expenses	\$3,750
Total operating expenses	\$9,050
Operating profit	\$5,061
Other revenues (expenses):	
Gain on sale of equipment	\$220
Interest expense	(\$250)
Total other revenues (expenses)	(\$30)
Income before tax	\$5,031
Income tax expense	\$1,510
Net income	\$3,521

Exhibit B: Balance Sheet

KTDA Balance Sheet as of 31 December 2023 and 2022 (in '000)			
Item	2023	2022	Net Change
Cash	\$1,327	\$1,254	\$73
Accounts receivable	1,025	986	39
Inventory	4,025	3,856	169
Prepaid expenses	134	179	(45)
Total current assets	6,411	6,275	136
Land	560	560	0
Buildings	3,800	3,800	0
Equipment	9,000	8,700	300
Less: accumulated depreciation	(3,600)	(3,300)	(300)
Total long-term assets	9,760	9,760	0
Total assets	\$16,171	\$16,035	136
Accounts payable	3,700	3,400	300
Salary and wage payable	90	80	10
Interest payable	65	75	(10)
Income tax payable	60	55	5
Other accrued liabilities	1,150	1,120	30
Total current liabilities	5,065	4,730	335
Long-term debt	3,000	3,500	(500)
Common stock	4,000	4,500	(500)
Retained earnings	4,106	3,305	801
Total liabilities and equity	\$16,171	\$16,035	136

Operating Activities Under the Direct Method

We begin determining the amount of money received from customers, then cash paid to suppliers and employees, and also cash paid for other operating expenses, income taxes, and interest expenses.

- ***Determination of the Amount of Cash Received from Customers (Cash collections)***

Revenue is adjusted by the net change in accounts receivable during the accounting period. If accounts receivable increase during the period, then the revenue on an accrual basis is higher than cash receipts from customers, and vice versa.

There are two methods of determining cash received from customers. The first method is to adjust revenue by the net change in accounts receivable so that:

$$\text{Revenue} \\ \text{Cash received from customers} = \text{less (plus) increase (decrease)} \\ \text{in accounts receivable}$$

Alternatively, we can use the relationship between the balance sheet and income items as follows:

$$\text{Beginning accounts receivable} + \\ \text{Cash received from customers} = \text{Revenue} \\ \text{Ending accounts receivable}$$

Using the results of the KTDA company, we get the following results (in '000):

Method 1	
Revenue	\$25,456
Less: Increase in accounts receivable	(39)
Cash received from customers	<u>\$25,417</u>

Method 2

Beginning accounts receivable	\$986
Plus: Revenue	25,456
Minus: Ending accounts Receivable	1,025
Cash collected from customers	\$25,417

- **Determining Amount that was Paid to Suppliers**

In identifying purchases from suppliers, the cost of goods sold is adjusted for the change in inventory during the accounting period. If inventory increased during the period, then purchases during the period exceeded the cost of goods sold and vice versa. Once the purchase amount has been determined, the cash paid to suppliers can be calculated by adjusting purchases for the change in accounts payable. If all purchases were made in cash, accounts payable will not change, and the cash outflows will equal purchases. However, if accounts payable increased during the year, then purchases on an accrual basis will be higher than they would ordinarily be on a cash basis, and vice versa.

Mathematically, this can be expressed as:

$$\text{Purchases from suppliers} = \frac{\text{Cost of goods sold less (plus)} \\ \text{decrease (increase) in inventory}}{}$$

Therefore,

$$\text{Cash paid to suppliers} = \frac{\text{Purchases from suppliers less (plus)} \\ \text{increase (decrease) in accounts payable}}{}$$

We can also use the relationship between the balance sheet and income items as follows:

$$\text{Cash paid to suppliers} = \frac{\text{Beginning accounts payable} + \\ \text{Purchases} - \\ \text{Ending accounts receivable}}{}$$

The effect of purchases from supplies on inventory can be seen in the following relationship, which depicts the relationship between balance sheet and income statements:

$$\text{Purchases from supplies} = \frac{\text{Ending inventory} - \text{Cost of goods sold}}{\text{Beginning inventory} + \text{Cost of goods sold}}$$

Using the balance sheet and income statement of KTDA, we have the following result:

Cost of goods sold	\$11,345,000
Plus: Increase in inventory	\$169,000
Equals purchases from suppliers	\$11,514,000
Less: Increase in accounts payable	\$300,000
Cash paid to suppliers	<u>\$11,214,000</u>

- **Determining Amount that was Paid to Employees**

In determining the cash paid to employees, salary and wages expense is adjusted by the net change in salary and wages payable for the year. If the salary and wages payable increase during the year, then salary and wages expense on an accrual basis will be higher than the amount of cash paid for this expense, and vice versa.

Mathematically, we can express the amount paid to employees as:

$$\text{Cash paid to employees} = \frac{\text{Salary and wages expense less (plus)} \\ \text{increase (decrease) in salary and wages payable}}{}$$

Alternatively, we can calculate the amount paid to employees as follows:

$$\text{Cash paid to employees} = \frac{\text{Beginning salary and wages payable} + \\ \text{Salary and wages expense} - \\ \text{Ending salary and wages payable}}{}$$

Using the balance sheet and income statements of hypothetical company KTDA, we get the following results:

Salary and wages expense	\$4,200,000
Less: Increase in salary and wages payable	\$10,000
Cash paid to employees	<u>\$4,190,000</u>

- **Determining Amount That was Paid for Other Operating Expenses**

In determining the amount of cash paid for other operating expenses, the other operating expenses amount on the income statement is adjusted by the net changes in prepaid expenses and accrued expense liabilities for the accounting period. If prepaid expenses increase during the period, other operating expenses on a cash basis will be higher than on an accrual basis, and vice versa. If the accrued expense liabilities increase during the period, other operating expenses on a cash basis will be lower than on an accrual basis, and vice versa.

As such, other operating expense is calculated as:

$$\text{Cash paid for other operating expenses} = \begin{array}{l} \text{Other operating expenses} \\ \text{less (plus) decrease (increase)} \\ \text{in prepaid expenses} \\ \text{less (plus) increase (decrease)} \\ \text{in other accrued expenses} \end{array}$$

Using the results of the KTDA company, cash paid for other operating expenses is calculated as follows:

Other operating expenses	\$3,750,000
Plus: Increase in inventory	\$169,000
Less: Increase in other accrued liabilities	\$30,000
Cash paid for other operating expenses	<u>\$3,889,000</u>

- ***Determining the Amount That was Paid for Interest***

In determining cash paid for interest, interest expense must be adjusted by the net change in interest payable for the period. If interest payable increases during the period, then interest expense on an accrual basis will be higher than the amount of cash paid for interest, and vice versa.

Therefore, the amount paid for interest can be expressed as:

$$\text{Cash paid for interest} = \begin{array}{l} \text{Interest expense less (plus)} \\ \text{increase (decrease) in interest payable} \end{array}$$

Alternatively, we can calculate the cash paid of interest as:

$$\text{Cash paid for interest} = \frac{\text{Beginning interest payable} + \text{Interest expense} - \text{Ending interest payable}}{}$$

Using the KTDA's financial statements, cash paid for interest is calculated as:

Interest expense	\$250,000
Plus: Decrease in interest payable	\$10,000
Cash paid for interest	<u>\$260,000</u>

- **Determining Amount that was Paid for Income Taxes**

In determining the cash paid for income taxes, the income tax expense amount on the income statement is adjusted by the net changes in taxes receivable, taxes payable, and deferred income taxes for the period. If taxes receivable or deferred tax assets increase during the accounting period, income taxes on a cash basis will be higher than on an accrual basis, and vice versa. If taxes payable or deferred tax liabilities increase during the period, income tax expense on a cash basis will be lower than on an accrual basis, and vice versa.

As such,

$$\text{Cash paid for income taxes} = \frac{\text{Income tax expense less (plus)} \\ \text{increase (decrease) in income tax payable}}{}$$

KTDA's cash paid for income taxes is calculated as follows:

Income tax expense	\$1,510,000
Less: Increase in income tax payable	\$5,000
Cash paid for income taxes	<u>\$1,505,000</u>

Operating Activities Under the Indirect Method

Under the indirect method, net income is reconciled with operating cash flow by adjusting net income for:

- **Non-operating activities.** For example, an amount reflecting the sale of equipment would be removed from the operating cash flow section and shown in the investing

section of the cash flow statement;

- **Non-cash expenses.** For example, depreciation expense would be added back to net income because it is a non-cash deduction in the computation of net income and
- **Changes in operating working capital items,** which include increments and decrements in the current operating asset and liability accounts. Changes in these accounts arise from applying accrual accounting and not cash accounting, i.e., recognizing revenue when earned and expenses when incurred instead of when cash is received or paid. An increase in a current operating asset account is subtracted from net income, while a net decrease is added to net income.

A summary of the adjustment to the net income is given in the following table below:

Item	Additions	Subtractions
Non-cash Items		- Amortization of bond premium
Non-Operating Items	<ul style="list-style-type: none"> - Loss on sale or write-down of assets - Loss on investments under equity method - Loss on retirement of debt 	<ul style="list-style-type: none"> - Gain on retirement of debt. - Gain on sale of assets. - Income on investments accounted for under equity method
Deferred Tax Liability	Increase in deferred income tax liability.	Decrease in deferred income tax liability.
Changes in Working Capital	<ul style="list-style-type: none"> - Decrease in current operating assets such as accounts receivable, inventory and prepaid expenses. - Increase in current operating liabilities such as accounts payable and accrued expense liabilities 	<ul style="list-style-type: none"> - Increase in current operating assets. - Decrease in current operating liabilities

Returning to KTDA's financial statements, indirect cash flow from operating activities is

calculated as follows:

Cash flow from operating activities:	
Net income	\$3,521,000
Depreciation expense	\$1,100,000
Gain on sale of equipment	\$(220,000)
Increase in accounts receivable	\$(39,000)
Increase in inventory	\$(169,000)
Decrease in prepaid expenses	\$45,000
Increase in accounts payable	\$300,000
Increase in salary and wage payable	\$10,000
Decrease in interest payable	\$(10,000)
Increase in income tax payable	\$5,000
Total adjustments	\$1,022,000
Cash flow from operating activities	<u>\$4,543,000</u>
Increase in other accrued liabilities	\$30,000
Net cash provided by operating activities	<u>\$4,573,000</u>

Recall that the cash flows associated with investing and financing activities remain the same, regardless of whether the direct or indirect method. As such, for the KTDA company, cashflow from investing and financing activities is as follows:

Cash flow from investing activities:	
Cash received from sale of equipment	\$220,000
Cash paid for purchase of equipment	<u>\$(1,000,000)</u>
Net cash used for investing activities	<u>\$(780,000)</u>
Cash flow from financing activities:	
Cash paid to retire long-term debt	\$(500,000)
Cash paid to retire common stock	\$(500,000)
Cash paid for dividends	\$2,720,000
Net cash used for financing activities	<u>\$(3,720,000)</u>
Net Increase in cash	\$73,000
Cash balance, 31 December 2022	\$1,254,000
Cash balance, 31 December 2023	<u>\$1,327,000</u>

Cash Flow from Investing Activities

Recall that the cash flows associated with investing and financing activities remain the same, regardless of whether the direct or indirect method. Returning to the hypothetical KTDA

company, cashflow from investing is as follows:

<u>Cash flow from investing activities:</u>	
Cash received from sale of equipment	\$220,000
Cash paid for purchase of equipment	<u>\$(500,000)</u>
Net cash used for investing activities	<u>\$(280,000)</u>

In order to determine the cash flow from the sale of equipment, we look into the equipment and the accumulated depreciation accounts, as well as the gain on the sale of equipment. Suppose we assume that all the depreciation is linked to the equipment. In that case, we can calculate cash received from the sale of equipment using historical cost and accumulated depreciation of the equipment sold, as well as the information regarding gain on the sale of equipment from the income statement.

If KTDA made an equipment purchase of USD 500,000 during the period, the historical cost of the equipment sold is calculated as follows:

Beginning balance equipment	\$8,700,000
Plus: equipment purchased	\$500,000
Minus ending balance equipment	<u>(\$9,000,000)</u>
Equals: historical cost of equipment sold	<u>\$200,000</u>

The accumulated depreciation is calculated as follows:

Beginning balance accumulated depreciation	\$3,300,000
Plus depreciation expense	\$1,100,000
Minus ending balance accumulated depreciation	<u>(\$3,600,000)</u>
Equals: Accumulated depreciation on equipment sold	<u>\$200,000</u>

Therefore, the cash received from the sale of equipment is calculated as follows:

Historical cost of equipment sold	\$200,000
Less: Accumulated depreciation on equipment sold	\$200,000
Equals: book value of equipment sold	\$0
Plus: gain on sale of equipment	\$220,000
Equals: cash received from sale of equipment	<u>\$220,000</u>

Cash Flow from Financing Activities

Like cash flow from investing activities, cash flows associated with financing activities remain the same, regardless of whether the direct or indirect method is used. Returning to the hypothetical KTDA company, cashflow from financing is as follows:

Cash flow from financing activities:	
Cash paid to retire long-term debt	\$(500,000)
Cash paid to retire common stock	\$(500,000)
Cash paid for dividends	\$(2,720,000)
Net cash used for financing activities	<u>\$(3,720,000)</u>
Net Increase in cash	\$73,000
Cash balance, 31 December 2022	\$1,254,000
Cash balance, 31 December 2023	\$1,327,000

Note that the dividends paid is calculated using the following formula:

$$\text{Beginning retained earnings} + \text{Net Income} - \text{Dividends} = \text{Ending Retained Earnings}$$

Based on the above formula, the KTDA's cash paid for dividends is calculated as follows:

Beginning balance of retained earnings	\$3,305,000
Plus: Net income	\$3,521,000
Equals: total before distributions	\$6,826,000
Minus: ending balance of retained earnings	\$4,106,000
Equals: dividends paid	<u>\$2,720,000</u>

Question

Which of the following steps is *least likely* included in the direct method for preparing cash flows from operations?

- A. Adjusting net income for non-cash expenses.
- B. Determining how much cash was paid for income taxes.
- C. Identifying how much cash was received from customers.

Solution

The correct answer is A.

Adjusting net income for non-cash expenses is one of the indirect methods for preparing cash flows from operations.

Options B and C present steps that are involved in the direct method of calculating cashflows from operating activities.

LOS 4c: demonstrate the conversion of cash flows from the indirect to direct method

Sometimes, a company may prepare the cash flow from the operations section of its cash flow statement using an indirect method. However, users of its financial statements may desire to review the direct-format cash flow from operations. This may arise from the need to review, for example, trends in the cash the company paid to its suppliers and the cash it received from its customers.

It is possible to convert the indirect method to the direct method. The accuracy of this conversion will depend on the accuracy of the adjustments made using data available in published financial reports.

Steps in Converting Cash Flows from Indirect Method to Direct Method

In converting cash flows from the indirect method to the direct method, the following three-step process is applied:

- Net income is disaggregated into total revenues and total expenses;
- Non-operating and non-cash items are removed from aggregated revenues and expense amounts, and the remaining items are broken down into relevant cash flow items and
- Accrual revenues and expenses are converted into cash flow receipts and payments by adjusting for changes in working capital accounts.

Example: Demonstrating Conversion from Indirect to Direct Method of Reporting Cash Flow from Operating Activities

Recall the balance sheet and the income statement of the hypothetical tea processing company, KTDA:

Exhibit A: Income Statement

KTDA Income Statement Year Ended 31 December 2023 (in '000)	
Revenue (net)	\$25,456
Cost of goods sold	\$11,345
Gross profit	\$14,111
Salary and wage expense	\$4,200
Depreciation expense	\$1,100
Other operating expenses	\$3,750
Total operating expenses	\$9,050
Operating profit	\$5,061
Other revenues (expenses):	
Gain on sale of equipment	\$220
Interest expense	(\$250)
Total other revenues (expenses)	(\$30)
Income before tax	\$5,031
Income tax expense	\$1,510
Net income	\$3,521

Exhibit B: Balance Sheet

KTDA Balance Sheet as of 31 December 2023 and 2022 (in '000)			
Item	2023	2022	Net Change
Cash	\$1,327	\$1,254	\$73
Accounts receivable	1,025	986	39
Inventory	4,025	3,856	169
Prepaid expenses	134	179	(45)
Total current assets	6,411	6,275	136
Land	560	560	0
Buildings	3,800	3,800	0
Equipment	9,000	8,700	300
Less: accumulated depreciation	(3,600)	(3,300)	(300)
Total long-term assets	9,760	9,760	0
Total assets	\$16,171	\$16,035	136
Accounts payable	3,700	3,400	300
Salary and wage payable	90	80	10
Interest payable	65	75	(10)
Income tax payable	60	55	5
Other accrued liabilities	1,150	1,120	30
Total current liabilities	5,065	4,730	335
Long-term debt	3,000	3,500	(500)
Common stock	4,000	4,500	(500)
Retained earnings	4,106	3,305	801
Total liabilities and equity	\$16,171	\$16,035	136

Also, recall that we prepared the indirect cash flow from the operating activities as follows:

Cash flow from operating activities:	
Net income	\$3,521,000
Depreciation expense	\$1,100,000
Gain on sale of equipment	(\$220,000)
Increase in accounts receivable	(\$39,000)
Increase in inventory	(\$169,000)
Decrease in prepaid expenses	\$45,000
Increase in accounts payable	\$300,000
Increase in salary and wage payable	\$10,000
Decrease in interest payable	(\$10,000)
Increase in income tax payable	\$5,000
Total adjustments	\$1,022,000
Cash flow from operating activities	\$4,543,000
Increase in other accrued liabilities	\$30,000
Net cash provided by operating activities	\$4,573,000

To convert the above cash flows from operating activities from the indirect method to the direct method, we shall follow the three steps outlined above:

Step 1: Disaggregated net Income into total revenues and total expenses

Total Revenue	\$25,676,000
Total Expenses	<u>\$22,155,000</u>
Net Income	<u>\$3,521,000</u>

Step 2: Remove all Non-operating and non-cash items from aggregated revenues and expense amounts, and break down the expenses into relevant cash flow items:

Total Revenue less Non-operating item revenues:	
(25,676,000 – 220,000) =	\$25,456,000
Total Expenses less Noncash item expenses	
(22,155,000 – 1,100,000) =	\$21,055,000
Cost of goods sold	\$11,345,000
Salary and wage expenses	\$4,200,000
Other operating expenses	\$3,750,000
Interest expense	\$250,000
Income tax expense	\$1,510,000
Total	\$21,055,000

Step 3: Convert Accrual revenues and expenses into cash flow receipts and payments by adjusting for changes in working capital accounts.

This step was dealt with in the previous LOS. So here are the cash flow receipts and payments as previously calculated:

Cash paid from customers	\$25,417,000
Cash paid to suppliers	\$11,214,000
Cash Paid to Employees	\$4,190,000
Cash paid for other operating expenses	\$3,889,000
Cash paid for income tax	\$1,505,000
Cash paid for interest	\$260,000
<u>Net Cash provided by operating activities</u>	<u>\$4,573,000</u>

Question

Which of the following is *most likely* the starting point for converting cash flows from operating activities from indirect to direct?

- A. Net income.
- B. Cash flow from operations.
- C. Cash received from customers.

Solution

The correct answer is A.

The first step in the three-step process for converting cash flows from the indirect method to the direct method is the disaggregation of net income into total revenues and expenses.

LOS 4d: contrast cash flow statements prepared under International Financial Reporting Standards (IFRS) and US generally accepted accounting principles (US GAAP)

The most significant difference is that IFRS gives companies more flexibility regarding how interest is paid or received, how dividends paid or received are reported, and how income tax expense is classified. Despite the flexibility provided by IFRS, companies must use a consistent classification each year. Besides, they must separately disclose the amounts of interest and dividends received and paid and where the amounts are reported.

IFRS vs. US GAAP Cash Flow Statements

The elements below summarize the significant differences between how the cash flow statement is prepared under IFRS and US GAAP.

IFRS Requirements

- Interest received may be classified either as an operating activity or an investing activity.
- Interest paid may be classified as an operating or financing activity.
- Dividends received may be classified either as an operating activity or an investing activity.
- Dividends paid may be classified as an operating or financing activity.
- Income tax expense is generally classified as an operating activity. Despite this, a portion of it may be allocated for investing in or financing activities if specifically related to those activities.
- Bank overdrafts are classified as part of cash and cash equivalents.¹
- The direct or indirect method may be used to report cash flow from operating

activities. However, of the two, the direct method is generally encouraged.

US GAAP Requirements

- Interest received must be classified as an operating activity.
- Interest paid must be classified as an operating activity.
- Dividends received must be classified as an operating activity.
- Dividends paid must be classified as a financing activity.
- Income tax expense must be classified as an operating activity.
- Bank overdrafts are not considered part of cash and cash equivalents. Instead, they are classified as financing activities.
- Either the direct or indirect method may be used for reporting cash flow from operating activities. It is noteworthy, though, that the direct method is encouraged. However, unlike under IFRS, a reconciliation of net income to cash flow from operating activities must be provided regardless of the method used.

A summary of the above differences is summarized in the following table:

Item	IFRS	US GAAP
Interest received	Either an operating or investing activity	Operating activity
Interest paid	Either an operating or financing activity	Operating activity
Dividends received	Either an operating or investing activity	Operating activity
Dividends paid	Either an operating or financing activity	Financing activity
Income tax	Generally an operating activity, but a portion is allocated to investing or financing activities if it is specifically identifiable with those activities	Operating activity
Bank overdrafts	Part of "cash and cash equivalents"	Financing activity
Reporting method	<ul style="list-style-type: none"> -Either direct or indirect method may be used for reporting cash flow from operating activities. -Although the direct method is encouraged. 	<ul style="list-style-type: none"> -Either direct or indirect method may be used for reporting cash flow from operating activities. -Although the direct method is encouraged. -Unlike under IFRS, however, a reconciliation of net income to cash flow from operating activities must be provided regardless of the method used.

Question #1

Which of the following statements is inaccurate?

- A. Under IFRS, dividends paid may be classified as an operating or financing activity, while under US GAAP, it can only be reported as a financing activity.
- B. Under IFRS, interest paid may be classified as an operating or financing activity, while under US GAAP, it can only be reported as a financing activity.
- C. Under IFRS, dividends received may be classified as an operating or an investing activity, while under US GAAP, it can only be reported as an operating activity.

Solution

The correct answer is B.

Under IFRS, interest paid may be classified as an operating or financing activity. However, under US GAAP, it can only be reported as an operating activity, not a financing activity.

Options A and C give accurate statements.

Question #2

A company paid \$500,000 as dividends during the year. How would that company classify this payment on the cash flow statement under IFRS and US GAAP?

- A. It would be classified as a financing cash outflow under both accounting standards.
- B. Under IFRS, it would be classified as an operating or as a financing cash flow. Under US GAAP, it would be classified as a financing cash flow.
- C. Under IFRS, it would be classified as an operating or as a financing cash flow. Under US GAAP, it would be classified as an operating cash flow.

Solution

The correct answer is B.

Activity: Dividends paid

IFRS Classification: Operating/Financing

US-GAAP Classification: Financing

Learning Module 5: Analyzing Statements of Cash Flows 2

LOS 5a: analyze and interpret both reported and common-size cash flow statements

Users of financial statements can obtain helpful information about a company by analyzing its cash flow statement. This can help them understand the company's business and earnings and predict its future cash flows.

The tools and techniques used in analyzing statement analysis include:

- analysis of sources and uses of cash and cash flow,
- common-size analysis, and
- calculation of free cash flow measures and cash flow ratios.

Analysis of Reported Cash Flow Statement

Evaluation of the cash flow statement involves assessing the sources and uses of cash in the three main categories: cash flows from operating, investing, and financing activities. Moreover, the analysis of cash flow statements involves assessing the main drivers of cash flow within each activity.

Generally, analysis of the reported cash flow statement is done in the following steps:

Step 1: Evaluation of Major Sources and Uses of Cash Flow Among the Operating, Investing, and Financing Activities

In this step, an analyst should consider major sources and uses of cash flow and determine whether the operating cash flow is positive and enough to cover capital expenditures.

The main cash sources for a company can vary depending on its growth stage. For instance, in mature companies, it is typical and desirable for cash flows to primarily originate from operational activities. Over the long term, it is essential for a company to generate cash through

its operating activities. Should these cash flows be persistently negative, the company would need to resort to borrowing or issuing equity (financing activities) to cover the shortfall.

Ultimately, the company financiers must be repaid through operational earnings, or they may choose to discontinue their financing.

Cash produced from operations might be allocated to investment or financing activities. When there are valuable investment opportunities, it is prudent to utilize cash for these investments. Conversely, if profitable investment avenues are lacking, this cash should be redirected back to the capital providers as part of financing activities.

For companies in the early or growth phases, operational cash flow might temporarily be negative as investments are made into critical assets such as inventory and receivables to facilitate business expansion. This scenario cannot be sustained indefinitely; eventually, the business needs to generate substantial operational cash flow to satisfy the demands of capital providers.

Finally, it is crucial for operating cash flows to adequately cover capital expenditures.

Step 2: Evaluation of the Primary Determinants of Operating Cash Flow

In this step, three important aspects are identifying major determinants of operating cash flow, ascertaining whether the operating cash flow is higher or lower than net income, and checking the consistency of operating cashflows.

Analysts should closely monitor changes in receivables, inventory, and payables to discern whether a company is consuming or producing cash through its operations and to understand the underlying reasons for these changes.

It is also important to compare a company's operating cash flow to its net income, especially for mature companies. Ideally, operating cash flow should surpass net income because net income may include non-cash charges like depreciation and amortization, which do not affect cash flow. A disparity where net income significantly exceeds operating cash flow could indicate poor earnings quality, suggesting that the company might be employing aggressive accounting tactics

that enhance net income without a corresponding cash generation.

Lastly, the variability in earnings and cash flows should be analyzed to assess their impact on the company's risk profile and its capability to project future cash flows for valuation. This examination helps in understanding how fluctuations in financial performance may affect the company's long-term financial health and valuation accuracy.

Step 3: Evaluation of the Primary Determinants of Investing Cash Flow

Analysts should thoroughly evaluate each line item within the investing activity section to discern the sources and uses of cash. This detailed analysis will show how much cash is allocated to long-term assets like property, plant, and equipment, how much is used for acquiring entire companies, and how much is invested in more liquid assets such as stocks and bonds. It will also indicate how much cash is generated by selling these types of assets.

Understanding the sources of funding for these major capital investments is crucial. Analysts should evaluate whether the funds are derived from surplus operating cash flow, financing activities, or other sources.

Additionally, if assets are being sold, it is vital to understand the reasons behind these sales and to consider the potential impacts of these disposals on the company's overall financial health and strategy.

Step 4: Evaluation of the Primary Determinants of Financing Cash Flow

Each line item in the financing activity section should be evaluated to determine whether the company is engaged in raising or repaying capital and to identify the nature of its capital sources. This includes evaluating if the company regularly borrows money and, if so, identifying the expected repayment dates, which are crucial for understanding the company's financial commitments.

Additionally, this section will detail dividend payments and stock repurchases, which are alternative methods the company uses to return capital to shareholders. Analysts must understand the reasons behind the company's decisions to raise or repay capital, as these

decisions directly impact the company's financial strategy and shareholder value.

Analysis of Common-size Cash Flow Statement

Common-sizing the cash flow statement can help to quickly tell if a company has sufficient cash to undertake certain activities, such as capital expenditures and debt repayment.

There are two approaches to the common-size analysis of a cash flow statement:

- **First approach:** Involves the expression of each line item of cash inflow as a percentage of total cash inflows and each cash outflow as a percentage of the total cash outflow. However, when a cash flow statement is presented using the indirect method, the operating cash inflows and outflows are not presented separately. As a result, the common-size cash flow statement will only show the net operating cash flow as a percentage of the total inflows or outflows (dependent on whether or not the net amount was a cash inflow or outflow).
- **Second approach:** Entails the expression of each line item on the cash flow statement as a percentage of net revenue.

Example: Common-sizing Cash Flow using the First Approach

Consider the following direct cash flow statement for a hypothetical company, KTDA, for the year ended

Cash flow from operating activities:	
Cash received from customers	\$25,417,000
Cash paid to suppliers	\$11,214,00,000
Cash paid to employees	\$(4,190,000)
Cash paid for other operating expenses	\$(3,889,000)
Cash paid for interest	\$(260,000)
Cash paid for income tax	\$1,505,000
Net cash provided by operating activities	\$4,573,000
Cash flow from investing activities:	
Cash received from sale of equipment	\$220,000
Cash paid for purchase of equipment	\$(1,000,000)
Net cash used for investing activities	\$(780,000)
Cash flow from financing activities:	
Cash paid to retire long-term debt	\$(500,000)
Cash paid to retire common stock	\$(500,000)
Cash paid for dividends	\$(2,720,000)
Net cash used for financing activities	\$(3,720,000)
Net Increase in cash	\$73,000
Cash balance, 31 December 2022	\$1,254,000
Cash balance, 31 December 2023	\$1,327,000

Note that under the first approach of common-sizing cash flow statement, each of the cash inflows is expressed as a percentage of the total cash inflows, whereas each of the cash outflows is expressed as a percentage of the total cash outflows.

As such, the common size of the direct cash flow statement is as follows:

Inflows	Percentage of Total Inflows	
Receipts from customers	\$25,417,000	99.14%
Sale of equipment	\$220,000	0.86%
Total	\$25,637,000	100.00%
Outflows	Percentage of Total Outflows	
Payments to suppliers	\$11,214,000	43.51%
Payments to employees	\$4,190,000	16.26%
Payments for other operating expenses	\$3,889,000	15.09%
Payments for interest	\$260,000	1.01%
Payments for income tax	\$1,505,000	5.84%
Purchase of equipment	\$1,000,000	3.88%
Retirement of long-term debt	\$500,000	1.94%
Retirement of common stock	\$500,000	1.94%
Dividend payments	\$2,720,000	10.56%
Total	\$25,778,000	100.00%

Question 1

Which of the following statements is *most* accurate?

- A. For mature companies, it would be preferable for financing activities to be the primary source of cash flows.
- B. If a company has a significant net income despite its negative operating cash flow, this may be a sign of poor earnings quality.
- C. One approach to the common-size analysis of the cash flow statement involves expressing each cash flow (inflows and outflows) as a percentage of total cash inflows.

Solution

The correct answer is B.

If a company has a negative operating cash flow and still has a significant net income, this is a manifestation of the poor quality of the company's earnings.

A is incorrect. For a mature company, operating activities, not financing activities, should be the primary source of cash flows.

C is incorrect. Common-sizing the cash flow statement entails the expression of each line item of cash inflow as a percentage of total cash inflows and each cash outflow as a percentage of total cash outflow.

Question 2

Which of the following ratios *most likely* indicates that a company has earnings of high quality?

- A. Operating cash flow/Net income > 1.
- B. Investing cash flow/Net income > 1.

C. Financing cash flow/Net income > 1.

Solution

The correct answer is A.

An operating cash flow or net income of one or more indicates that all the earnings recognized on an accrual basis on the income statement have also been recognized on a cash basis on the cash flow statement. The cash realization of earnings gives these earnings a higher value than similar earnings with less corresponding cash from operations since the latter earnings are less likely to be realized in cash.

LOS 5b: calculate and interpret free cash flow to the firm, free cash flow to equity, and performance and coverage cash flow ratios

Evaluating Free CashFlow

Recall that it is important for operating cash flows to adequately cover capital expenditures. The surplus of operating cash flow after accounting for capital expenditures is called free cash flow.

In company valuation aspects, such as assessing a company's overall value or its equity securities, an analyst might consider utilizing additional cash flow metrics such as free cash flow to the firm (FCFF) or free cash flow to equity (FCFE).

Free Cash Flow to the Firm

Free Cash Flow to the Firm (FCFF) is the cash flow available to a company's debt and equity capital suppliers after the company has paid all its operating expenses and made the required investments in fixed and working capital. It is computed according to the following equation:

$$\text{FCFF} = \text{NI} + \text{NCC} + \text{Int}(1 - \text{Tax rate}) - \text{FCInv} - \text{WCInv}$$

Where:

NI = Net income;

NCC = Non-cash charges;

Int = Interest expense;

FCInv = Capital expenditures; and

WCInv = Working capital expenditures.

Alternatively, it may be computed as:

$$\text{FCFF} = \text{CFO} + \text{Int}(1 - \text{Tax rate}) - \text{FCInv}$$

Where CFO represents cash flow from operating activities in the case where interest paid is included as an operating activity.

If interest paid is categorized under financing activities, then there is no need to adjust cash flow from operations (CFO) for interest adjusted for taxes, i.e., $\text{Int}(1 - \text{Tax rate})$.

Additionally, according to IFRS guidelines, if interest and dividends received are reported under investing activities, these amounts should be added back to the CFO when calculating free cash flow to the firm (FCFF). Furthermore, if dividends paid are deducted in the operating section, they should be reinstated to CFO for the accurate computation of FCFF.

Free Cash Flow to Equity

Free Cash Flow to Equity (FCFE) refers to the cash flow available to a company's common stockholders after it has paid all its operating expenses and borrowing costs and made the required investments in fixed capital and working capital. It is computed according to the following equation:

$$\text{FCFE} = \text{CFO} - \text{FCInv} + \text{Net borrowing}$$

If net borrowing is negative, a company's debt repayments have exceeded its receipt of borrowed funds. In this case:

$$\text{FCFE} = \text{CFO} - \text{FCInv} - \text{Net debt repayment}$$

A positive FCFE implies that a company has more operating cash flow than it needs to cover capital expenditures and debt repayment. Therefore, such a company has cash available for distribution to shareholders.

Example: Calculating FCFF and FCFE from Cash Flow Statement

Consider the following direct cash flow statement for a hypothetical company, KTDA, for the year ended

December
2023

Cash flow from operating activities:	
Cash received from customers	\$25,417,000
Cash paid to suppliers	\$11,214,00,000
Cash paid to employees	\$(4,190,000)
Cash paid for other operating expenses	\$(3,889,000)
Cash paid for interest	\$(260,000)
Cash paid for income tax	\$1,505,000
Net cash provided by operating activities	<u>\$4,573,000</u>
Cash flow from investing activities:	
Cash received from sale of equipment	\$220,000
Cash paid for purchase of equipment	<u>\$(1,000,000)</u>
Net cash used for investing activities	\$(780,000)
Cash flow from financing activities:	
Cash paid to retire long-term debt	\$(500,000)
Cash paid to retire common stock	\$(500,000)
Cash paid for dividends	\$(2,720,000)
Net cash used for financing activities	<u>\$(3,720,000)</u>
Net Increase in cash	\$73,000
Cash balance, 31 December 2022	\$1,254,000
Cash balance, 31 December 2023	\$1,327,000

We wish to calculate FCFF and FCFE from the above Cash Flow Statement, assuming a tax rate of 30%.

Solution

FCFF is calculated as shown in the table below:

CFO	USD4,573,000
Plus: Interest paid times (1 - income tax rate) (USD260,000 [1 - 0.30])	USD182,000
Less: Net investments in fixed capital (USD1,000,000 - USD220,000)	(USD780,000)
FCFF	USD3,975,000

Note that net fixed capital investment is calculated from the cash flow from investing activities. We use the data for payments for the purchase of equipment (USD1,000,000) and proceeds from

the sale of equipment (USD220,000).

Lastly, FCFE is calculated as follows:

CFO	USD4,573,000
Less: Net investments in fixed capital (USD1,000,000 - USD220,000)	(USD780,000)
Less: Debt repayment (USD500,000)	(USD500,000)
FCFE	USD3,293,000

Cash Flow Performance and Coverage Ratios

Several ratios can be computed using the cash flow from the operating activities segment of a cash flow statement. Data gathered from the computation can be used to compare the performance and prospects of different companies within the same industry or across industries. These ratios fall into two categories: cash flow performance (profitability) ratios and cash flow coverage (solvency) ratios.

These ratios are summarized in the following table:

Performance Ratios		
Performance Ratio	Calculation	Indication
Cash flow to revenue	$\frac{\text{CFO}}{\text{Net revenue}}$	Operating cash generated per dollar of revenue.
Cash return on assets	$\frac{\text{CFO}}{\text{Average total assets}}$	Operating cash generated per dollar of asset investment.
Cash return on equity	$\frac{\text{CFO}}{\text{Average shareholder's equity}}$	Operating cash generated per dollar of owner investment.
Cash to income	$\frac{\text{CFO}}{\text{Operating income}}$	Cash generated from operations.
Cash flow per share	$\frac{\text{CFO} - \text{Pref Dividends}}{\text{Number of common shares outstanding}}$	Operating cash flow on a per-share basis.

Coverage Ratios		
Coverage Ratio	Calculation	Indication
Debt payment	$\frac{\text{CFO}}{\text{Cash paid for long-term debt payment}}$	Ability to pay debts with operating cash flows.
Dividend payment	$\frac{\text{CFO}}{\text{Dividend paid}}$	Ability to pay dividends with operating cash flows.
Investing and financing	$\frac{\text{CFO}}{\text{Cash outflows for Inv. and Fin. activities}}$	Ability to acquire assets, pay debts, and make distributions to owners.
Debt coverage	$\frac{\text{CFO}}{\text{Total debt}}$	Financial risk and financial leverage.
Interest coverage	$\frac{\text{CFO} + \text{Interest Paid} + \text{Taxes Paid}}{\text{Interest paid}}$	Ability to meet interest obligations.
Reinvestment	$\frac{\text{CFO}}{\text{Cash paid for long-term assets}}$	Ability to acquire assets with operating cash flows.

Example: Calculating the Performance Ratio from a Financial Statement

An analyst analyzes the financial statements of a company. Some of the information from the financial statements of the company is given below (in thousands):

Revenue (net)	\$25,456
Cost of goods sold	\$11,345
Gross profit	\$14,111
Cash paid to retire long-term debt	\$(500)
Net cash provided by operating activities	\$4,573
Cash paid to retire common stock	\$(500)
Cash paid for dividends	\$(2,720)

Assuming that the company does not have short-term debt, the debt repayment ratio is *closest to:*

- A. 4.60

- B. 9.15
- C. 9.28

Solution

The correct answer is **B**.

The debt repayment ratio is calculated as follows:

$$\begin{aligned}\text{Debt repayment} &= \frac{\text{CFO}}{\text{Cash paid for long-term debt payment}} \\ &= \frac{\$4,573}{\$500} \\ &= 9.15\end{aligned}$$

Question 1

Which of the following statements accurately describes free cash flow to the firm (FCFF)?

- A. Cash flow is available to a company's suppliers of debt capital after the company has paid all its operating expenses and made necessary investments in fixed and working capital.
- B. Cash flow is available to a company's suppliers of debt and equity capital after the company has paid all its operating expenses and made necessary investments in fixed and working capital.
- C. Cash flow is available to a company's common stockholders after the company has paid all its operating expenses and borrowing costs and made necessary investments in fixed and working capital.

Solution

The correct answer is **B**.

Free cash flow to the firm (FCFF) is the cash flow available to a company's suppliers of debt and equity capital after the company has paid all its operating expenses and made necessary investments in fixed and working capital.

B is incorrect. It describes free cash flow to equity (FCFE).

C is incorrect. It inaccurately excludes suppliers of equity capital in its definition.

Question 2

U&U Ltd. reported the following information in its latest financial reports:

Beginning borrowing balance: \$200,000

Ending borrowing balance: \$250,000

Cash from operations: \$500,000

Fixed capital investment: \$100,000

U&U's free cash flow to equity (FCFE) is *closest to*:

- A. \$50,000
- B. \$150,000
- C. \$450,000

Solution

The correct answer is C.

$$\begin{aligned} \text{FCFE} = & \text{Cash from operations} - \text{Fixed capital investment} \\ & + \text{Net borrowing} \end{aligned}$$

Where:

Net borrowing = Ending borrowing balance - Beginning borrowing balance

Net borrowing = \$250,000 - \$200,000 = \$50,000

$\Rightarrow \text{FCFE} = \$500,000 - \$100,000 + \$50,000 = \$450,000$

$$\begin{aligned} \text{Net borrowing} \Rightarrow \text{FCFE} &= \text{Ending borrowing balance} \\ &- \text{Beginning borrowing balance} \\ &= \$250,000 - \$200,000 \\ &= \$50,000 = \$500,000 - \$100,000 + \$50,000 \\ &= \$450,000 \end{aligned}$$

Learning Module 6: Analysis of Inventories

LOS 6a: describe the measurement of inventory at the lower of cost and net realisable value and its implications for financial statements and ratios

The type of inventory valuation can affect the inventory carrying amounts and the cost of sales. Consequently, financial items such as current assets, total assets, and net income are impacted. As such, analysts should analyze financial statements and accompanying notes information regarding inventory accounting policies.

Measurement of Inventory at the Lower of Cost and Net Realizable Value

Recall Net realizable value is defined as the estimated selling price in the ordinary course of business, less the estimated costs necessary to make the sale and the costs to get the inventory in condition for sale.

Both IFRS and US GAAP have specific guidelines for inventory measurement, though there are notable differences.

IFRS Guidelines

Under IFRS, inventories must be measured and carried on the balance sheet at the lower of cost and net realizable value. This measurement is crucial in financial reporting as it ensures that inventory is not overstated on the balance sheet. This is particularly important because the value of inventory can decrease due to factors such as spoilage, obsolescence, or declining selling prices.

The assessment of net realizable value is typically performed item by item or by groups of similar or related items. If the net realizable value of inventory falls below its carrying amount, the inventory must be written down to this net realizable value. The resulting loss is recognized as an expense on the income statement, either included in the cost of sales or reported separately.

In subsequent periods, if the net realizable value increases, previous write-downs can be reversed, but only up to the amount of the original write-down. This reversal is recognized as a reduction in the cost of sales.

US GAAP Guidelines

Historically, US GAAP required inventories to be valued at a lower of cost or market value. However, for fiscal years beginning after December 15, 2016, inventories excluding those measured using the last-in, first-out (LIFO) or retail inventory methods are measured at the lower of cost or net realizable value, aligning more closely with IFRS.

Unlike IFRS, US GAAP prohibits the reversal of inventory write-downs. For inventories measured using LIFO and retail inventory methods, "market value" is defined as the current replacement cost, subject to upper and lower limits. The market value cannot exceed net realizable value, nor can it be less than net realizable value minus a normal profit margin.

Implications of Inventory Measurement on Financial Statements and Ratios

Inventory write-downs decrease reported profits because the loss is recognized as an expense on the income statement. This negatively affects profitability ratios, such as the net profit margin and gross profit margin.

Moreover, the write-down reduces the carrying amount of inventory on the balance sheet, which can negatively affect liquidity ratios like the current and quick ratios. Lower inventory values also reduce the total asset base, impacting solvency ratios such as the debt-to-assets ratio.

Lastly, activity ratios, such as inventory turnover and total asset turnover, can improve following a write-down because these ratios are calculated using a lower asset base (denominator).

Special Considerations

Analysts should be aware of the potential for significant inventory write-downs, especially in industries where technological obsolescence is a major risk. It's essential to evaluate the

potential impact of inventory write-downs on financial ratios, particularly when debt covenants include specific ratio requirements. Breaching these covenants can have severe consequences for a company.

Companies using specific identification, weighted average cost, or FIFO methods are more prone to inventory write-downs compared to those using LIFO. Under the LIFO method, inventory costs are already conservatively presented at the oldest (often lowest) costs, making significant write-downs less likely.

International Accounting Standards 2 (IAS 2), which governs inventories, does not apply to producers of agricultural and forest products, minerals, and commodity broker-traders. These inventories may be measured at net realizable value according to industry practices, often based on market prices if an active market exists.

Question #1

If a company values its inventory at the net realizable value, this will *most likely*:

- A. Improve the company's profitability.
- B. Decrease the company's inventory turnover.
- C. Lead to any loss being recognized as an expense on the company's income statement.

Solution

The correct answer is **C**.

When a company's inventory carrying amount is written down to its net realizable value, the loss is recognized as an expense on the income statement.

A and B are incorrect. If a company values its inventory at the net realizable value, its profitability will decrease as its inventory turnover increases.

Question #2

To find the net realizable value of a company's inventory, which of the following items ought to be deducted from the inventory's expected selling price?

- A. Selling costs.
- B. Costs required to convert inventory into a sellable condition.
- C. Both selling costs and costs are required to convert inventory into a sellable condition.

Solution

The correct answer is **C**.

The net realizable value of a company's inventory could be figured out using the

following equation:

Net realizable value = Selling price in an arm's length transaction - Cost of sales -
Cost required to convert inventory to sellable condition.

LOS 6 b: calculate and explain how inflation and deflation of inventory costs affect the financial statements and ratios of companies that use different inventory valuation methods

Rising inventory costs (inflation) or declining inventory costs (deflation) can significantly impact a company's financial statements, depending on the inventory valuation method used. Differences in the selected valuation method can affect companies' comparability when doing financial ratio analysis.

FIFO Method

- **Inflation:** When inventory unit costs rise and inventory quantities remain constant or increase, FIFO allocates a lower amount of the total cost of goods available for sale to the cost of sales on the income statement and a higher amount to ending inventory on the balance sheet. Therefore, a company's gross profit, operating profit, and income before taxes will be higher.
- **Deflation:** When inventory unit costs decline and inventory quantities remain constant or increase, FIFO allocates a higher amount of the total cost of goods available for sale to the cost of sales on the income statement and a lower amount to ending inventory on the balance sheet. Therefore, a company's gross profit, operating profit, and income before taxes will be lower.

Generally, ending inventory amount under FIFO will more closely reflect current replacement values because inventories are assumed to consist of the most recently purchased items.

LIFO Method

- **Inflation:** When inventory unit costs rise, LIFO allocates a higher amount of the total cost of goods available for sale to the cost of sales on the income statement and a lower amount to ending inventory on the balance sheet. Therefore, a company's gross profit,

operating profit, and income before taxes will be lower.

- **Deflation:** When inventory unit costs decline, LIFO allocates a lower amount of the total cost of goods available for sale to the cost of sales on the income statement and a higher amount to ending inventory on the balance sheet. Therefore, a company's gross profit, operating profit, and income before taxes will be higher.

The cost of sales under LIFO will more closely reflect current replacement values. However, the LIFO ending inventory amounts normally do not reflect the current replacement value because the ending inventory is assumed to be the oldest inventory, and costs are allocated accordingly.

Question 1

Which of the following statements is *most likely* accurate?

- A. When unit costs increase and quantities remain constant or increase, LIFO allocates a lower amount of the total cost of goods available for sale to the cost of sales on the income statement and a higher amount to ending inventory on the balance sheet.
- B. When unit costs increase and quantities remain constant or increase, FIFO allocates a lower amount of the total cost of goods available for sale to the cost of sales on the income statement and a higher amount to ending inventory on the balance sheet.
- C. When unit costs decrease and quantities remain constant or increase, FIFO allocates a lower amount of the total cost of goods available for sale to the cost of sales on the income statement and a higher amount to ending inventory on the balance sheet.

Solution

The correct answer is **B**.

Whenever inventory unit costs rise and inventory quantities remain constant or increase, FIFO allocates a lower amount of the total cost of goods available for sale to the cost of sales on the income statement and a higher amount to ending inventory on the balance sheet.

A is incorrect because it describes FIFO and not LIFO.

C is incorrect because under those circumstances (declining prices), FIFO allocates a higher amount of the total cost of goods available for sale to the cost of sales on the income statement and a lower amount to ending inventory on the balance sheet and not the reverse as indicated.

Question 2

For a company to increase its assets during a deflationary period, it needs to follow the:

- A. FIFO method.
- B. LIFO method.
- C. Average cost of inventory method.

Solution

The correct answer is **B**.

Using LIFO during a deflationary period would make a company add the most recently purchased inventory (the least expensive), which would leave the oldest inventory (the most expensive) to be added to the ending inventory. Hence, the increased value of inventory would lead to increased assets.

LOS 6c: describe the presentation and disclosures relating to inventories and explain issues that analysts should consider when examining a company's inventory disclosures and other sources of information

Presentation and Disclosures Relating to Inventories

IFRS Disclosure Requirements:

Under IFRS, companies must include the following information in their financial statements regarding inventories:

- **Accounting Policies:** The accounting policies adopted for measuring inventories, including the cost formula (inventory valuation method) used.
- **Total Carrying Amount:** The total carrying amount of inventories and the carrying amount in classifications such as merchandise, raw materials, production supplies, work in progress, and finished goods.
- **Fair Value Measurement:** The carrying amount of inventories carried at fair value less costs to sell.
- **Expense Recognition:** The amount of inventories recognized as an expense during the period (cost of sales).
- **Write-downs:** The amount of any write-down of inventories recognized as an expense in the period.
- **Reversals of Write-downs:** The amount of any reversal of any write-down that is recognized as a reduction in the cost of sales in the period.
- **Circumstances for Reversals:** The circumstances or events that led to the reversal of a write-down of inventories.
- **Pledged Inventories:** The carrying amount of inventories pledged as security for liabilities.

US GAAP Disclosure Requirements

Inventory-related disclosures under US GAAP are similar to those under IFRS but have some differences:

- **Significant Estimates:** Disclosure of significant estimates applicable to inventories.
- **LIFO Liquidation:** Disclosure of any material amount of income resulting from the liquidation of LIFO inventory.
- **Exclusions for Write-down Reversals:** Unlike IFRS, US GAAP does not require disclosures related to the reversal of inventory write-downs, and as such, reversals are not permitted.

Issues Analysts Should Consider

Analysts should consider several key issues when examining a company's inventory disclosures and other sources of information.

The choice of inventory valuation method (FIFO, LIFO, Weighted Average) affects several financial statement items, including cost of sales, gross profit, net income, inventories (current assets), total assets

Analysts should also consider the effect of inventory valuation on financial ratios: Inventory valuation methods impact financial ratios such as:

- Current ratio, since inventory is a component of current assets.
- Return on assets (ROA) because the cost of sales affects net income, and inventory is part of total assets.
- Gross profit margin, since gross profit is affected by the cost of sales.
- Inventory turnover since it measures how efficiently inventory is managed.

Note that adjustments of inventory carrying amounts to net realizable value or current replacement cost can also impact the above financial items and ratios.

Other Considerations

1. Inventory Size

Analysts should compare the company's inventory turnover ratio with sales trends to determine the appropriate inventory size. A too-small inventory might lead to missed sales opportunities, while too much inventory can negatively impact financial ratios.

2. Composition of Inventory

The percentage change of different inventory categories (finished goods, raw materials, work in progress) can indicate management's expectations about future demand. For example, an increase in finished goods might suggest slower future sales growth.

3. Inventory Growth vs. Sales Growth

Analysts should compare the growth rate of finished goods with the sales growth rate. If inventory growth outpaces sales, it could indicate potential future sales slowdowns or overstocking.

4. Other Sources of Information

Additional information can be found in the Management Discussion and Analysis (MD&A) section, as well as industry reports and economic data related to the industry. This can provide context and further insights into inventory management and future sales trends.

Inventory Ratios

Three key ratios often used to evaluate the efficiency and effectiveness of inventory management are the inventory turnover ratio, days of inventory on hand (DOH), and gross profit margin. These ratios are directly influenced by a company's choice of inventory valuation method.

However, other financial ratios, such as the current ratio, return on assets (ROA), and debt-to-equity ratio, are less directly affected by the inventory valuation method.

Inventory Turnover Ratio

Measures how often a company sells and replaces its inventory over a period. It is calculated as:

$$\text{Inventory Turnover Ratio} = \frac{\text{COGS}}{\text{Average Inventory}}$$

A higher turnover ratio indicates more efficient inventory management, as it means the company sells its inventory more frequently, reducing the investment tied up in inventory. Conversely, a low inventory turnover ratio could signal poor inventory management or overstocking. Comparing this ratio to industry norms helps contextualize the company's performance.

Days of Inventory on Hand (DOH)

Indicates the average number of days inventory is held before it is sold. It is inversely related to inventory turnover.

$$\text{Days of Inventory on Hand} = \frac{365}{\text{Inventory Turnover Ratio}}$$

Inventory turnover and DOH should be compared against industry norms and tracked over multiple periods to assess trends.

A high inventory turnover ratio and low DOH can indicate efficient inventory management. However, it could also suggest inadequate inventory levels or aggressive write-downs, potentially leading to lost sales or production issues. Analysts should compare the company's inventory turnover and sales growth rates with industry averages to differentiate between these scenarios and review inventory-related disclosures.

Conversely, a low inventory turnover ratio and a high DOH relative to industry standards may signal slow-moving or obsolete inventory. Comparing sales growth with industry norms and examining financial statement disclosures can provide further insights into potential inventory issues.

Gross Profit Margin

Gross profit margin indicates the percentage of sales that exceeds the cost of goods sold,

contributing to net income. It is calculated as:

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Sales}}$$

Gross profit margin provides insight into a company's financial health, indicating how much of each dollar of sales is retained as profit after accounting for the cost of goods sold.

Generally, companies in highly competitive markets typically have lower gross profit margins, while those selling luxury goods generally have higher margins. However, companies with higher margins might have lower inventory turnover rates than those selling staple goods.

Question 1

Which of the following financial statement items is *not* directly affected by the choice of inventory valuation method?

- A. Revenue.
- B. Net income.
- C. Cost of sales.

Solution

The correct answer is **A**.

Revenue is not affected by the choice of inventory valuation method. Net income and cost of sales, on the other hand, are.

B is incorrect. Net income is affected by the inventory valuation method because it impacts the cost of sales.

C is incorrect. Cost of sales is directly affected by the inventory valuation method used.

Question 2

The financial disclosure information required by the IFRS, but not US GAAP, is:

- A. Information related to inventory write-downs.
- B. Information related to inventory write-down reversals.
- C. Information related to the carrying amount of each inventory section.

Solution

The correct answer is **B**.

US GAAP does not require the disclosure of write-down reversals because it does not

allow for the reversal of write-downs.

A is incorrect. Both IFRS and US GAAP require information related to inventory write-downs.

C is incorrect. Both IFRS and US GAAP require information related to the carrying amount of each inventory section.

Learning Module 7: Analysis of Long Term Assets

LOS 7a: compare the financial reporting of the following types of intangible assets: purchased, internally developed, and acquired in a business combination

Intangible assets, from its name, are assets that lack physical substance. Intangible assets encompass items with exclusive rights like patents, copyrights, trademarks, and franchises.

According to IFRS, identifiable intangible assets must meet three **definitional** criteria:

1. it must be separable or arise from contractual or legal rights,
2. it must be under the company's control and
3. it should be expected to provide future economic benefits.

Additionally, identifiable intangible assets must meet two **recognition criteria**:

1. the asset will likely bring future economic benefits to the company and
2. the asset's cost can be reliably measured.

An example of an unidentifiable intangible asset is goodwill. Goodwill arises during the acquisition of a company when the purchase price exceeds the fair value of the net identifiable assets acquired.

The accounting treatment for intangible assets depends on the method of acquisition. Intangible assets may be acquired in three primary ways: purchased in situations other than business combinations, developed internally, and acquired in business combinations. The accounting treatment accorded to an asset depends on which of these methods is used in its acquisition.

Financial Reporting for Intangible Assets

Intangible Assets Purchased in Situations Other Than Business Combinations

Intangible assets, such as patents purchased outside of business combinations, are recorded at

their fair value, which is usually the purchase price. When multiple intangible assets are acquired together, the purchase price is allocated to each asset based on its fair value.

Analysts focus more on understanding the types of intangible assets acquired rather than the exact value assigned to each asset. This approach provides insights into the company's strategic direction and future potential.

Intangible Assets Developed Internally

The costs of internally developed intangible assets are generally expensed when incurred, contrasting with the treatment of construction costs for tangible assets. In some cases, the costs incurred to develop an intangible asset internally are capitalized. This brings up key analytical issues, such as comparability across companies and the impact on a company's trend analysis.

The requirement to expense the costs of internally developed intangible assets should be compared to capitalizing the costs of acquiring intangible assets in non-business combination situations. Since internally developed intangible assets are typically expensed, a company developing assets like patents, copyrights, or brands through R&D or advertising will show fewer assets compared to a company purchasing such assets. On the statement of cash flows, costs for internally developing intangible assets are considered operating cash outflows, whereas acquisition costs are classified as investing cash outflows. Therefore, developing versus acquiring intangible assets can affect financial ratios.

IFRS Treatment

IFRS mandates that expenditures on research (or during the research phase of an internal project) be expensed and not capitalized as an intangible asset. According to IAS 38, Intangible Assets, research is defined as "original and planned investigation undertaken with the prospect of gaining new scientific or technical knowledge and understanding." The research phase of an internal project refers to the period when a company cannot demonstrate that an intangible asset is being created, such as the search for alternative materials or systems for production processes.

However, IFRS allows companies to recognize an intangible asset from development expenditures or during the development phase of an internal project if certain criteria are met, such as demonstrating the technical feasibility of completing the intangible asset and the intent to use or sell it.

According to 4 IAS 38, Intangible Assets, paragraph 8, Definitions, development is “the application of research findings or other knowledge to a plan or design for producing new or substantially improved materials, devices, products, processes, systems, or services before the start of commercial production or use.”

US GAAP Treatment

Under US GAAP, both research and development costs are generally expensed when incurred. However, certain costs related to software development must be capitalized. Costs to develop software for sale are expensed until the product's technological feasibility is established and capitalized thereafter. Similarly, for software developed for internal use, costs are expensed until it is probable that the project will be completed and the software used as intended, after which development costs are capitalized. The criteria for capitalization of software development costs are similar to those for all internally developed intangible assets under IFRS, including the costs of employees who build and test the software.

Intangible Assets Acquired in a Business Combination

When a company purchases another, the acquisition method of accounting is used. This involves the acquiring company allocating the purchase price to the acquired assets and assumed liabilities at their fair values. Any excess amount over the identifiable net assets' value is recorded as goodwill, which is inseparable from the business itself.

Under IFRS, acquired assets include identifiable intangible assets that meet specific criteria. If an item from a business combination does not qualify as a tangible or identifiable intangible asset, it is classified as goodwill.

According to US GAAP, two conditions must be considered when assessing whether an intangible

asset acquired in a business combination should be recognized separately from goodwill. The asset must either arise from contractual or legal rights or be capable of being separated from the acquired company. Such intangible assets include patents, copyrights, franchises, licenses, internet domain names, and audiovisual materials.

Question 1

Which of the following statements is *most* accurate?

- A. A company that has developed intangible assets internally will recognize fewer assets than one that has obtained intangible assets through an external purchase.
- B. A company that has developed intangible assets internally will recognize a higher amount of assets than a company that has obtained intangible assets through an external purchase.
- C. A company that has developed intangible assets internally will report an amount of assets that is equivalent to that of a company that has obtained intangible assets through an external purchase.

Solution

The correct answer is A.

Under most accounting standards, such as the International Financial Reporting Standards (IFRS) and the US Generally Accepted Accounting Principles (GAAP), companies are not allowed to capitalize (i.e., recognize as assets) expenses related to the internal development of most intangible assets (e.g., research and development costs). These costs are usually expensed as they are incurred. On the other hand, when a company buys intangible assets from an external party, it can recognize them as assets on the balance sheet at the purchase price.

Therefore, a company that has developed intangible assets internally will typically have fewer intangible assets on its balance sheet than a company that has acquired similar assets through an external purchase.

Question 2

Compared to a company that develops an intangible asset internally, a company that purchases the same asset would exhibit:

- A. Higher cash flow from operations.
- B. Higher cash flow from investing activities.
- C. Higher cash flow from financing activities.

Solution

The correct answer is **B**.

The company that develops the asset internally would typically expense related costs, such as research and development costs, which would be reflected as a reduction in the cash flow from operations. The company that purchases the asset would record the purchase as a cash outflow in the investing activities section of the cash flow statement. This means that the company that purchases the intangible asset would exhibit a higher (in absolute terms, more negative) cash outflow in the investing activities section of its cash flow statement than the company that develops the asset internally.

Here is an example:

Company A develops a new software program internally. The company incurs \$1 million in research and development expenses over the course of the project. Company B purchases the same software program for \$2 million from another company.

Company A's cash flow from investing activities for the period would be \$0 because it did not incur any cash outflows for the software program. Company B's cash flow from investing activities for the period would be -\$2 million because it paid \$2 million to purchase the software program.

Even though Company A incurred \$1 million in research and development expenses, these expenses were expensed in the period they were incurred, so they do not directly impact cash flow from investing activities.

LOS 7b: explain and evaluate how impairment and derecognition of property, plant, and equipment, and intangible assets affect the financial statements and ratios

While depreciation and amortization spread the cost of a long-lived asset over its useful life, impairment charges address unexpected value decreases. An asset is impaired when its carrying amount is higher than its recoverable amount.

International Financial Reporting Standards (IFRS) and Generally Accepted Accounting Principles (US GAAP) define recoverability slightly differently, but both recognize impairment losses when the asset's carrying amount is not recoverable. Moreover, both IFRS and US GAAP require companies to reduce the carrying amount (book value) of impaired assets. IFRS allows reversals of impairment for identifiable long-lived assets, while US GAAP typically does not.

Impairment and derecognition can significantly impact a company's financial statements and financial ratios. For instance, impairment charges directly reduce a company's asset value on the balance sheet. Derecognition removes the asset entirely. Both scenarios decrease total assets.

On the income statement, impairment charges appear as expenses, lowering reported net income. In terms of financial ratios, changes in asset and income statement figures can affect ratios such as return on assets (ROA), debt-to-equity ratio, and price-to-book ratio. Lower asset values or higher expenses due to impairment can negatively impact these ratios.

Impairment of Property, Plant and Equipment

Accounting regulations do not mandate annual impairment tests for property, plant, and equipment. Instead, at the end of each reporting period, typically a fiscal year, companies must evaluate if there are any signs that an asset might be impaired. If no such indications exist, no impairment test is conducted. However, if signs such as obsolescence, falling demand for products, or technological improvements are detected, the asset's recoverable amount must be calculated to conduct an impairment test.

In cases where the carrying amount of property, plant, and equipment is greater than its

recoverable amount, impairment losses are recorded. These losses decrease the asset's reported value on the balance sheet and also reduce the net income on the income statement. Note that these impairment losses are non-cash charges and do not impact operational cash flow.

The standards for recognizing and measuring impairment losses differ between IFRS and US GAAP. Under IAS 36 (IFRS), an impairment loss is determined as the amount by which the carrying amount exceeds the recoverable amount. Specifically, the recoverable amount is the higher of an asset's fair value, less costs to sell and its value in use. On the other hand, the value in use is estimated based on the present value of the expected future cash flows.

Conversely, U.S. GAAP separates the assessment of recoverability from the actual measurement of an impairment loss. For a group of assets, the carrying amount is considered non-recoverable if it is higher than the undiscounted future cash flows expected from those assets. When this is the case, the impairment loss is calculated as the difference between the asset's fair value and carrying amount.

Example: Impairment Analysis of Property, Plant, and Equipment

Arbor Industries, a hypothetical company, specializes in the manufacturing of eco-friendly packaging materials. Following a surge in competitive products that are both cheaper and more durable, Arbor has observed a significant downturn in sales. The company's management has collected the following financial data related to one of their key manufacturing machine:

Parameter	Value
Carrying Amount	AUD 120,000
Undiscounted Expected Future Cash Flows	AUD 100,000
Present Value of Expected Future Cash Flows	AUD 90,000
Fair Value if Sold	AUD 95,000
Costs to Sell	AUD 5,000

Under IFRS and US GAAP, what would the company report for the manufacturing machine?

Solution:

Under IFRS:

Arbor Industries must determine the recoverable amount by comparing the carrying amount

(AUD 120,000) with the higher of two figures: the fair value less costs to sell (AUD 90,000) and the value in use (AUD 90,000).

$$\begin{aligned}\max(\text{Carrying Amount}, [\text{Fair value} - \text{Costs to sell}]) &= \max(120,000, [95,000 - 5,000]) \\ &= \text{AUD } 120,000\end{aligned}$$

Here, both figures are the same and lower than the carrying amount. Therefore, an impairment loss of AUD 30,000 would be recognized, bringing down the carrying amount to AUD 90,000.

$$\begin{aligned}\text{Impairment Loss Calculation} &= \text{Carrying Amount} - \text{Higher of Fair Value} \\ &\quad \text{Less Costs to Sell or Value in Use} \\ &= \text{AUD } 120,000 - \text{AUD } 90,000 \\ &= \text{AUD } 30,000\end{aligned}$$

This loss would be recorded in the income statement, and Arbor Industries would need to revise the depreciation schedule based on the new carrying amount.

Under US GAAP:

Under US GAAP, the focus would be on comparing the carrying amount (AUD 120,000) with the undiscounted expected future cash flows (AUD 100,000). Since the undiscounted cash flows are less than the carrying amount, an impairment is confirmed. The impairment loss is calculated by comparing the carrying amount to the fair value:

$$\begin{aligned}\text{Impairment Loss Calculation} &= \text{Carrying Amount} - \text{Fair Value} \\ &= 120,000 - 95,000 \\ &= \text{AUD } 25,000\end{aligned}$$

This loss would be recognized in the income statement, reducing the asset's carrying amount to AUD 95,000 (Fair Value) on the balance sheet.

Impairment of Finite Life Intangible Assets

Intangible assets that have a finite lifespan are amortized, leading to a gradual reduction in their value over time. These assets may also face impairment. As with physical assets like property and equipment, intangible assets are not assessed for impairment annually, and as such

assessment only occurs when significant events warrant it.

The company evaluates if any substantial events that indicate potential impairment have arisen by the conclusion of each reporting period. Such events might involve a noteworthy drop in market value or a significant adverse shift in legal or economic circumstances. Accounting for impairment in intangible assets of finite life mirrors that of tangible assets. An impairment loss lessens the asset's recorded value on the balance sheet, reducing net income on the income statement.

Impairment of Indefinite Life Intangibles

Intangible assets of an indefinite lifespan are not subject to amortization. They're recorded on the balance sheet at historical cost and are evaluated for impairment at least once a year. Impairment occurs if the carrying amount exceeds the asset's fair value.

Impairment of Long-Lived Assets Held for Sale

When management intends to sell a long-lived asset and its sale is highly likely, the asset is reclassified as "held for sale" instead of "held for use." This reclassification requires the asset to be immediately sale-ready in its current state. For instance, if a company plans to sell a building it no longer requires and meets the accounting criteria, the building is reclassified from property, plant, and equipment to non-current assets held for sale.

Upon reclassification, assets previously held for use undergo an impairment test. If, upon reclassification, the carrying amount is higher than the fair value less selling costs, an impairment loss is recognized. The asset's value is then written down to fair value minus selling costs. Assets held for sale are no longer subject to depreciation or amortization.

Reversals of Impairments of Long-Lived Assets

After an impairment loss has been recognized for an asset, circumstances might change such that the asset's recoverable amount increases. For example, the outcome of a successful appeal in a patent infringement lawsuit could raise the recoverable amount of a previously devalued

patent.

Under IFRS, there is an allowance for the reversal of impairment losses if the recoverable amount of an asset improves, irrespective of whether the asset is held for use or sale. It is important to note that IFRS only permits the reversal of impairment losses; it does not allow the recoverable amount to be revalued above the original carrying amount if it exceeds it.

Conversely, US GAAP treat the reversal of impairment differently based on the classification of the asset. For assets classified as held for use, any impairment loss recognized cannot be reversed. This means once the value of such an asset is reduced due to impairment, it cannot be subsequently increased. However, for assets classified as held for sale, reversals are permitted if the fair value of the asset increases following the impairment loss.

Derecognition

When a company derecognizes an asset, it removes it from the financial statements. This happens when the asset is no longer expected to deliver future benefits through use or disposal. The derecognition of a long-lived operating asset can occur through sale, exchange, abandonment, or distribution to existing shareholders.

Recall that non-current assets that management plans to sell or distribute to shareholders and which are immediately available for sale in their current condition and where a sale is highly probable are categorized as non-current assets held for sale.

Derecognition by Sale

When an asset is derecognized through selling, the profit or loss from the sale of long-lived assets is calculated by subtracting the asset's carrying amount at the time of sale from the sales proceeds. Typically, an asset's carrying amount is its net book value, which is its historical cost less any accumulated depreciation. However, this amount may be adjusted to account for any impairment or revaluation of the asset.

A gain or loss from the sale of an asset is reported on the income statement, either integrated

with other gains and losses or as a distinct line item if the amount is substantial.

Derecognition Other than by Sale

Long-lived assets intended for disposal through means other than sale (abandonment, exchange for another asset, or distribution to owners in a spin-off) are classified as held for use until they are disposed of or until they meet the criteria to be reclassified as held for sale or for distribution. As such, these assets continue to be depreciated and are subject to impairment testing, similar to other long-lived assets owned by the company, unless their carrying amount reaches zero.

When an asset is retired or abandoned, the accounting treatment is akin to that of a sale, except that no cash proceeds are recorded. The asset is removed from the books at its carrying amount at the time of retirement or abandonment, and a loss equal to this carrying amount is recognized.

In the case of an asset exchange, the accounting involves removing the carrying amount of the asset that is given up, recognizing the fair value of the asset received, and recording any difference between the carrying amount and the fair value as a gain or loss. The fair value of the asset given up is generally used unless the fair value of the asset received is more clearly evident. If there is no reliable measure of fair value, the acquired asset is recorded at the carrying amount of the asset given up.

A gain is recognized if the fair value of the newly acquired asset exceeds the carrying amount of the asset given up. Conversely, a loss is recognized if the fair value of the newly acquired asset is less than the carrying amount of the asset given up. If the acquired asset is valued at the carrying amount of the given-up asset due to the absence of a reliable, fair value, no gain or loss is recognized.

Question

Which of the following statements is the *most* accurate?

- A. Impairment losses reduce the carrying amount of assets and increase the net income reported on the income statement.
- B. If revaluation increases an asset's carrying amount, the increase in the asset's value will appear as a gain on the income statement.
- C. When an asset is retired, the carrying amount is removed from the balance sheet, and a loss (or gain) is recorded for the difference between the carrying amount and any proceeds received from the disposal of the asset.

Solution

The correct answer is **C**.

When an asset is retired or sold, its carrying amount is removed from the balance sheet, and any difference between the carrying amount and the proceeds from the disposal is recorded as a gain or loss in the income statement.

A is incorrect. Impairment losses reduce the carrying amount of assets and decrease, **not** increase, the net income reported on the income statement.

B is incorrect. Under IFRS, increases in the carrying amount from revaluation are generally recognized in other comprehensive income and accumulated in equity under the heading of revaluation surplus, not as a gain in the income statement (unless it reverses a previous revaluation decrease that was recognized in profit or loss).

LOS 7c: analyze and interpret financial statement disclosures regarding property, plant, and equipment and intangible assets

Users of financial statements can use financial statement disclosures to deepen their understanding of a company's investments in tangible and intangible assets. Financial statement disclosures divulge such details as how those investments have changed during a reporting period, how the changes have affected the company's current financial performance, and the implications the changes might have on the company's expected future performance.

Under IFRS

Under IFRS, companies must disclose for each class of property, plant, and equipment the basis of measurement, depreciation methods, useful lives or depreciation rates, the gross carrying amounts, and the accumulated depreciation at both the start and end of the period. Additionally, companies must provide a reconciliation of the carrying amounts from the beginning to the end of the period.

Further disclosures required include any restrictions on title, pledges of property, plant, and equipment as security, and contractual obligations to acquire such assets. If the revaluation model is adopted, details such as the date of revaluation, how the fair value was determined, the carrying amount under the cost model, and any revaluation surplus must be reported.

Companies must also disclose the depreciation expense for the period, the balances of major classes of depreciable assets, total accumulated depreciation, and a general description of the depreciation methods applied.

For intangible assets under IFRS, companies need to state whether the useful lives are indefinite or finite. For assets with finite lives, disclosures should include the amortization methods, useful lives or amortization rates, the gross carrying amount, and accumulated amortization at the beginning and end of the period, including a reconciliation of these amounts. Where amortization affects the income statement, this must be indicated. For assets with indefinite lives, the carrying amount and the rationale for classifying the life as indefinite should be disclosed.

Similar to tangible assets, information on any restrictions, security interests, and future acquisition agreements of intangible assets is required. If using the revaluation model, the same details as tangible assets should be disclosed regarding fair value assessment and surplus.

Under US GAAP

Under US GAAP, companies must provide the gross carrying amounts and accumulated amortization for intangible assets both in total and by major class, the total amortization expense for the period, and the expected amortization expense for the next five fiscal years.

Disclosure requirements for impairment losses also vary between IFRS and US GAAP. Under IFRS, companies must report the amounts of impairment losses and reversals by asset class, including where these are recognized in the financial statements. They should also aggregate the main asset classes affected by impairments and reversals, and describe the key events and circumstances leading to these losses and reversals.

Under US GAAP, where impairment losses are not reversible for assets held for use, companies must describe the impaired asset, the cause of impairment, the method of fair value determination, the amount of the impairment loss, and its recognition in the financial statements.

How do Disclosures Appear on Financial Statements?

Financial statement disclosures concerning long-lived assets include their carrying values on the balance sheet, while the income statement may show depreciation expenses either separately or integrated depending on whether a 'nature of expense' or 'function of expense' method is used. The statement of cash flows, especially when prepared using the indirect method, typically includes depreciation or amortization as an adjustment to reconcile net income to cash flow from operations.

Notes to the financial statements detail the company's accounting methods, estimated useful life ranges, historical cost by main asset category, accumulated depreciation, and annual depreciation expense.

Applying Disclosures in Analysis

Ratios utilized in analyzing fixed assets include the fixed asset turnover ratio and various asset age ratios.

Fixed Asset Turnover Ratio

The fixed asset turnover ratio, calculated as follows:

$$\text{Fixed asset turnover ratio} = \frac{\text{Total Revenue}}{\text{Average net fixed assets}}$$

Intuitively, from the above formula, the fixed asset turnover ratio measures the relationship between total revenues and investment in property, plant, and equipment (PPE). As such, a higher ratio indicates that a company executes more sales with a given amount of investment in fixed assets, often interpreted as a sign of greater efficiency.

Asset Age Ratios

Asset age ratios generally depend on the relationship between historical cost and depreciation. Under IFRS's revaluation model, this relationship may differ when carrying amounts significantly diverge from depreciated historical costs, as such we apply the age ratios to PPE reported under the cost model.

Two important asset age ratios are asset age and remaining useful life. Age ratios indicate a company's need to reinvest in productive capacity. Older assets and shorter remaining lives suggest a greater need for reinvestment.

The Average Age of a company's asset base is approximated as:

$$\text{Average Age of a company's asset base} = \frac{\text{Accumulated depreciation}}{\text{Depreciation expense}}.$$

On the other hand, the average remaining life of a company's asset base is estimated as:

$$\text{Average Remaining life of a company's asset base} = \frac{\text{Net PPE}}{\text{depreciation expense}}$$

The average age and average remaining life ratio estimates reflect the relationships for assets accounted for on a historical cost basis:

$$\text{Net PPE} = \text{Total historical cost} - \text{Accumulated depreciation}$$

Moreover, under straight-line depreciation:

$$\text{Annual depreciation expense} = \frac{\text{Total historical cost} - \text{Salvage value}}{\text{Estimated useful life}}$$

In summary, assuming straight-line depreciation and no salvage value, the following relationships suffice:

$$\begin{aligned}\frac{\text{Estimated Total}}{\text{Useful Life}} &= \text{Time elapsed since purchase (age)} + \frac{\text{Estimated remaining life}}{\text{remaining life}} \\ \frac{\text{Estimated Total}}{\text{Useful Life}} &= \frac{\text{Historical Cost}}{\text{Annual Depreciation}} \\ \text{Historical Cost} &= \text{Accumulated Depreciation} + \text{Net PPE}\end{aligned}$$

Conversely,

$$\begin{aligned}\frac{\text{Estimated Total}}{\text{Useful Life}} &= \frac{\text{Estimated Age of Equipment}}{\text{Annual depreciation expense}} + \frac{\text{Estimated Remaining Life}}{\text{Annual depreciation expense}} \\ \frac{\text{Historical cost}}{\text{Annual depreciation expense}} &= \frac{\text{Accumulated depreciation}}{\text{Annual depreciation expense}} + \frac{\text{Net PPE}}{\text{Annual depreciation expense}}\end{aligned}$$

Accurately making the above approximations is challenging due to the use of various depreciation methods, different asset useful lives and salvage values, and the presence of fully depreciated assets. Moreover, fixed asset disclosures tend to be general, making precise estimates challenging but useful for identifying areas needing further investigation.

Comparing annual capital expenditures to annual depreciation expenses provides a general indication of whether a company maintains its productive capacity. This comparison indicates the

rate at which PPE is being replaced relative to the rate at which it is being depreciated.

Question 1

Assuming that the historical cost of PPE for companies ABC and XYZ are the same, and the companies use the same depreciation method, consider the following information on their PPE:

Estimates	Company ABC	Company XYZ
Estimated total useful life (years)	10.4	21.3
Estimated age (years)	5.7	11.0
Estimated remaining life (years)	4.7	9.4

Which of the following statements is the *least* accurate?

- A. The estimates suggest over 50% of each company's useful life has passed.
- B. The estimated age of the equipment suggests that company ABC has newer PPE than company XYZ.
- C. The estimated total useful life suggests that company XYZ depreciates PPE over a much shorter period than company ABC.

Solution

The correct answer is **C**.

The estimated total useful life suggests that company ABC depreciates PPE over a much longer (not shorter) period than company XYZ. The estimated total useful life of PPE is the total historical cost of PPE divided by annual depreciation expense. If the historical cost of both companies' PPE is the same, and they use the same depreciation method, then the company with the lower estimated total useful life – company ABC – must have a higher depreciation expense, which would stem from the choice to depreciate PPE over a shorter period than company XYZ.

Question 2

XYZ company follows a straight-line depreciation method and reports the information below for its production machines:

Annual depreciation expense: \$50,000;

accumulated depreciation expense: \$200,000;

carrying value: \$650,000.

What is the machines' estimated remaining useful life, and how long has the company held them?

- A. The remaining useful life is five years, and the company has held the machines for three years.
- B. The remaining useful life is eight years, and the company has held the machines for four years.
- C. The remaining useful life is 13 years, and the company has held the machines for four years.

Solution

The correct answer is C.

$$\begin{aligned}\text{Remaining useful life} &= \frac{\text{Asset's carrying value}}{\text{Annual depreciation expense}} \\ &= \frac{\$650,000}{\$50,000} \\ &= 13 \text{ years} \\ \text{Asset's holding period} &= \frac{\text{Accumulated depreciation expense}}{\text{Annual depreciation expense}} \\ &= \frac{\$200,000}{\$50,000} \\ &= 4 \text{ years}\end{aligned}$$

Learning Module 8: Topics in Long-Term Liabilities and Equity

LOS 8a: explain the financial reporting of leases from the perspectives of the lessors and lessees

A lease is a contract between a lessor, the owner of an asset, and a lessee, the other party seeking to use the asset. Through a lease, the lessor grants the lessee the right to use the asset. In exchange for the right to use the asset, the lessee makes periodic lease payments to the lessor.

For a contract to contain a lease or be a lease, it must:

1. Have a specific underlying asset.
2. Give the customer the ability to stipulate for what purpose and how the underlying asset is used.
3. Give the customer the right to derive all economic benefits from the asset over the term of the contract.

Advantages of leasing an asset

- Leases can provide less costly financing for the lessee than purchases. They usually require little, if any, down payment and often go at lower fixed interest rates than those that would otherwise be incurred if the asset was purchased.
- The lessor may be better positioned to take advantage of tax benefits of ownership, such as depreciation and interest.
- The lessor enhances their ability to value and bear the risks associated with ownership, such as obsolescence, residual value, and disposition of an asset.
- The lessor may enjoy economies of scale for servicing assets.
- A negotiated lease contract may contain less restrictive provisions than other forms of borrowing.

Lessee's Perspective

A finance (or capital) lease is equivalent to a lessee's purchase of an asset directly financed by the lessor. On the other hand, an operating lease is an agreement that allows a lessee to use an asset for a period of time.

The economic substance of a finance lease is very different from that of an operating lease. Each type of lease also carries implications for financial statements for both the lessee and the lessor.

Finance Lease vs. Operating Lease

Under IFRS, the classification of a lease, either as a finance lease or an operating lease, is dependent on the transfer of the risks and rewards that are incidental to ownership of the leased asset.

If all the risks and rewards are substantially transferred to the lessee, the lease is classified as a **finance lease**, and the lessee will report the leased asset and lease obligation on its balance sheet. Otherwise, the lease will be reported as an **operating lease**, in which case the lessee reports neither an asset nor a liability but only reports the lease expense.

Finance Lease

A finance lease is economically similar to **borrowing money and buying an asset**. As a result, a company that enters into a finance lease, as the lessee, reports the leased asset and related debt (lease payable) on its balance sheet. On the income statement, the lessee reports interest expense on the debt, and if the acquired asset is depreciable, depreciation expense is also reported. The lessor will report the sale of an asset and a lease as a receivable.

For a finance lease, only the portion of the lease payment relating to interest expense potentially reduces the operating cash flow. The portion of the lease payment that reduces the lease liability appears as a cash outflow in the financing section.

Operating Lease

An operating lease is economically similar to **renting an asset**. As a result, a company that enters into an operating lease, as the lessee, will record a lease expense on its income statement during the period within which it uses the asset. No asset or liability will be recorded on its balance sheet. The lease payment is shown as an operating cash outflow on the lessees' statement of cash flows.

How Does This Affect Financial Statements?

A company reporting a lease as an **operating lease** will typically show **higher profits** in the early years and a **more robust solvency than a company reporting** a similar lease as a finance lease.

However, the company reporting the lease as a finance lease will show **higher operating cash flows** because the portion of the lease payment that reduces the carrying amount of the lease liability will be reflected as a financing cash outflow rather than an operating cash outflow.

In a finance lease, a lessee reports the leased asset and corresponding liability on their balance sheet. This scenario leads to higher reported assets and debt. The lessee will also recognize both depreciation and interest expenses, which could result in higher expenses in the early years of the lease.

In contrast, with an operating lease, lessees traditionally did not report the leased asset and liability on their balance sheet. They only recognized the lease payments as an expense evenly over the lease term, which could lead to lower reported assets, liabilities, and expenses especially in the early years of the lease. This accounting treatment distinction is why lessees might prefer operating leases, as they may result in more favorable financial ratios and appear less burdensome on the balance sheet and income statement, particularly in the early lease years.

However, note that recent updates to accounting standards, specifically IFRS 16 and ASC 842, now require the recognition of assets and liabilities for operating leases, altering this traditional distinction.

IFRS vs. US GAAP

IFRS and US GAAP stipulate that appropriate disclosures concerning operating and finance leases should be made. Due to the differences between these types of leases, however, some of the disclosure requirements are dissimilar.

In the case of finance leases, IFRS requires the balance sheet to present finance lease obligations in the line items labeled "Debt."

IFRS also requires certain disclosures to be made in the notes. However, the layout of disclosure notes on the debt will vary across companies. Usually, the notes provide:

- A breakdown of the total debt reported on the balance sheet into two components: the amount of debt excluding finance lease obligations and the amount of finance lease obligations;
- Disclosures on the component of on-balance-sheet debt, excluding finance lease obligations and
- Information about all the lease obligations of a company, both finance and operating leases, including the present and future value of minimum finance lease payments.

Even though operating and finance leases are contractual obligations, only finance leases are reported on the balance sheet.

For operating leases, the disclosure notes will provide information on the commitments due to operating lease contracts, i.e., the nominal value of the future minimum payments and their maturity dates.

Lessors Perspective

If the lessor substantially transfers all the risks and rewards incidental to legal ownership, the lease is reported as a finance lease. Consequently, the lessor reports a lease receivable on its balance sheet and removes the leased asset from its balance sheet. Otherwise, if the lease is reported as an operating lease, the lessor keeps the leased asset on its balance sheet.

Both IFRS and US GAAP stipulate that appropriate disclosures concerning operating and finance

leases should be made. Due to the differences between these types of leases, however, some of the disclosure requirements are dissimilar.

Operating Lease	Lessor
	<p>Retains assets on the balance sheet.</p> <p>Reports rent income reports depreciation expense on the leased asset.</p>
When the present value of lease payments equals the carrying amount of the leased asset (called a direct financing lease in US GAAP).	<p>Removes assets from the balance sheet and recognizes lease receivables.</p> <p>Reports interest revenue on lease receivables.</p>
When the present value of lease payments exceeds the carrying amount of the leased asset (called a sales-type lease under US GAAP).	<p>Removes assets and recognizes lease receivables.</p> <p>Reports profit on sale and reports interest revenue on lease receivables.</p>

- a. US GAAP distinguishes between a direct financing lease and a sales-type lease, but IFRS does not. The accounting is the same for IFRS and US GAAP despite this additional classification under US GAAP.
- b. If providing leases is part of a company's regular business activity, the cash flows related to the leases are classified as operating cash.

Question #1

Under an operating lease contract, a lessor would *most likely*:

- A. Keep ownership of the asset and report the asset's depreciation.
- B. Keep ownership of the asset, but the lessee must report the asset's depreciation.
- C. Transfer ownership of the asset to the lessee but revoke ownership transfer if the lessee does not fulfill its contractual obligations.

Solution

The correct answer is A.

In an operating lease agreement, the lessor retains ownership of the leased asset and is responsible for any depreciation on the asset. The lessee simply uses the asset for a specified period, and at the end of the lease term, the asset is returned to the lessor. The lessee does not report depreciation for the asset; instead, they account for the lease payments as an operating expense over the lease term.

Question #2

Which of the following statements is the *most* accurate?

- A. A finance lease is economically similar to renting an asset.
- B. In a finance lease, the lessee reports a leased asset and lease obligation on its balance sheet.
- C. An operating lease is equivalent to a lessee's purchase of an asset directly financed by the lessor.

Solution

The correct answer is B.

In a finance lease, the lessee recognizes the right-of-use asset and the corresponding lease liability on its balance sheet. This accounting treatment reflects the economic reality that the lessee has control over the asset and is obligated to make lease payments.

A is incorrect because a finance lease is more similar economically to purchasing an asset than renting, as the lessee assumes both the benefits and risks of ownership.

C is incorrect because an operating lease does not equate to an asset purchase by the lessee. The lessor retains ownership of the asset in an operating lease, and the lessee does not record the asset on its balance sheet (under traditional operating lease accounting).

LOS 8b: explain the financial reporting of defined contribution, defined benefit, and stock-based compensation plans

Employee Compensation

Employee compensation packages are structured to achieve various objectives, including meeting employees' liquidity needs, retaining them, and motivating their performance. Common components of employee compensation include salary, bonuses, health, and life insurance premiums, defined contribution and benefit pension plans and share-based compensation.

Salary addresses employees' liquidity needs. Bonuses, typically paid in cash, link pay to performance, motivating and rewarding employees for achieving short or long-term goals. Non-monetary benefits, such as health and life insurance, housing, and vehicles, facilitate employees' job performance. Salary, bonuses, and non-monetary benefits generally vest (i.e., employees earn the right to the consideration) immediately or shortly after they are granted.

For financial reporting, a company records compensation expenses on the income statement in the period when the compensation vests. Immediate or short-term vesting simplifies the accounting for salary, most non-monetary benefits, and bonuses. When an employee earns the salary or bonus, an expense is recorded at the fair value of the compensation, and a cash outflow or accrued compensation liability (a current liability) is recognized. Expenses and cash outflows for short-term compensation are often well-matched.

Deferred Compensation

While salaries, bonuses, and non-monetary benefits tend to vest immediately, deferred compensation vests over time, providing employees with retirement savings and financial benefits and serving as a retention and alignment tool for employers.

Financial reporting for deferred compensation plans is more complex than for immediately vesting compensation due to measurement challenges and the time lag between employee service and cash outflows. Employees might earn compensation in the current period but receive

it in the future, with the amount based on factors such as future salary or the employer's stock price, requiring management judgment and assumptions.

Pensions and other post-employment benefits are common types of deferred compensation. Two common pension plans are defined contribution and defined benefit plans.

Defined Contribution Plans

In a Defined Contribution (DC) pension plan, financial reporting is relatively straightforward. The employer's obligation is limited to the contributions it has agreed to make to the plan. In each period, the employer records an expense for the amount of its contribution to the employees' pension funds. Since the employer has no further obligations regarding the amount that will be available to employees upon retirement, there are no liabilities recorded on the balance sheet relating to the pension plan beyond any contributions that are due but have not yet been paid on the balance sheet date.

The contributions are generally reported as an operating expense in the employer's income statement. The exact line item can vary but is often included under "Employee Benefit Expenses" or a similar category. In terms of cash flow, these contributions are classified as operating activities, reflecting the cost of employing labor for the period. Unlike defined benefit plans, the employer does not need to make assumptions about future salary levels, years of service, or other actuarial assumptions, and there is no concern about underfunded or overfunded pension liabilities.

On the employee's side, the contributions made by the employer are added to the employee's pension fund assets, which are invested and will be used to provide retirement benefits to the employee. The employee typically has some choice regarding how the assets in their pension fund are invested and bears the investment risk, meaning the benefits received upon retirement depend on the investment performance of the pension fund assets. Comprehensive disclosures about the plan assets, including investment strategies and major categories of plan assets, are generally not required in the employer's financial statements under a defined contribution plan.

Defined Benefit Plans

Under a defined-benefit pension plan, a company promises future benefits to employees during retirement. For example, a company might promise employees annual pension payments equal to 50% of their final salary until death. To measure this obligation, the company must make several assumptions, such as the employee's expected salary at retirement and their life expectancy post-retirement. The company estimates these future payments and discounts them to present value using a discount rate equivalent to the yield on a high-quality corporate bond.

Most defined-benefit pension plans are funded through assets held in a separate legal entity, typically a pension trust fund. The company makes contributions to the fund, which are invested until needed to pay retirees. If the fair value of the plan's assets exceeds the present value of the estimated pension obligation, the plan has a surplus, and the company reports a net pension asset on its balance sheet. Conversely, if the present value of the estimated pension obligation is greater than the fair value of the plan's assets, the plan has a deficit, and the company reports a net pension liability on its balance sheet.

Defined-Benefit Plans Under IFRS

Under IFRS, alterations in the net pension asset or liability are categorized into three broad components. The first two, recognized as pension expenses on the income statement, are **employees' service costs and the net interest expense or income accrued on the initial net pension asset or liability.**

The service cost is the present value of the increase in the pension benefit an employee earns by providing an additional year of service, including any effects from plan changes, known as past service costs. Net interest expense or income represents the time-induced change in the present value of the net defined benefit pension asset or liability, calculated as the product of the net pension asset or liability and the discount rate.

The third component, "remeasurements," is recognized in other comprehensive income and includes actuarial gains and losses and the actual return on plan assets less any return included in the net interest expense or income. These remeasurements are not amortized into profit or loss over time.

Actuarial gains and losses emerge when changes occur in the assumptions used for estimating pension obligations, such as employee turnover, mortality rates, retirement ages, and compensation increases.

The actual return on plan assets, encompassing interest, dividends, and other income, including realized and unrealized gains or losses, generally differs from the amount recorded in net interest expense or income. This discrepancy arises as the actual return includes diverse asset classes, whereas the net interest calculation is based on a rate reflective of a high-quality corporate bond yield.

Defined-Benefit Plans Under US GAAP

Under US GAAP, variations in net pension asset or liability each period consist of five components, with some recognized immediately in profit and loss and others in other comprehensive income and subsequently amortized into profit and loss over time. The components acknowledged on the income statement in the period incurred include (I) **employees' service costs** for the period, (II) **interest expense accrued on the initial pension obligation**, and (III) **the expected return on plan assets**, which diminishes the recognized expense.

The remaining two components, (IV) **past service costs** and (V) **actuarial gains and losses**, follow a different accounting treatment. Past service costs are reported in other comprehensive income in the period they arise and later amortized into pension expense over the employees' future service period covered by the plan.

Similarly, actuarial gains and losses are initially recognized in other comprehensive income and then amortized over time into pension expense, permitting companies to "smooth" the impact on pension expense over time for these elements. Although US GAAP allows companies to recognize actuarial gains and losses in profit and loss instantly, this practice is not mandatory.

In terms of classification, pension expense on the income statement aligns with a functional basis similar to other employee compensation expenses. For manufacturing firms, pension expenses related to production employees augment inventory and are expensed through the cost of sales

(cost of goods sold). For non-production employees, these expenses are recorded under selling, general, and administrative expenses. Despite its significance, pension expense is typically not directly reported on the income statement, and detailed disclosures are inclusively presented in the financial statement notes.

Share-Based Compensation

Share-based compensation is another type of deferred compensation that aims to align employees' interests with those of shareholders. Unlike pension plans, share-based compensation is typically concentrated among senior-level employees such as executives and directors.

Both IFRS and US GAAP require companies to disclose key elements of management compensation in their annual reports, with regulators possibly requiring additional details. These disclosures help analysts understand the nature and extent of compensation, including share-based payment arrangements during the reporting period.

For financial reporting, under both IFRS and US GAAP, companies estimate the fair value of share-based compensation at the grant date and recognize it as compensation expense over the vesting period. Changes in stock price after the grant date do not affect financial reporting. The specifics of financial reporting depend on the type of plan. Two common forms of equity-settled share-based compensation are stock grants and stock options.

Advantages and Disadvantages of Share-Based Compensation

Share-based compensation has the advantage of potentially requiring no cash outlay, as it aims to align employee interests with those of shareholders. However, it is treated as an expense and reduces earnings even when no cash is exchanged.

Share-based compensation has several drawbacks. Issuing shares to employees dilutes existing shareholders. Additionally, recipients may have limited control over the company's market value, meaning share-based compensation might not always incentivize the desired behavior and could improperly reward or penalize performance. For instance, increased ownership might lead

managers to avoid risks, fearing a significant drop in market value and personal wealth, which could result in less profitable projects. Conversely, awarding stock options could lead to excessive risk-taking, as options have skewed payouts that reward the upside while limiting the downside to zero, prompting managers to pursue high-risk, high-reward investments.

Stock Grants

A company can grant stock to employees in several ways: outright, with restrictions, or contingent on performance.

- **Outright Stock Grants:** For outright stock grants, the company reports compensation expense based on the fair value of the stock on the grant date, typically the market value. This expense is spread over the period benefiting from the employee's service, known as the service period. Unless specific conditions apply, such as requiring three years of future service before vesting, the service period is assumed to be the current period.
- **Restricted Stock Grants:** Restricted stock grants require employees to return the shares if certain conditions are not met, such as remaining with the company for a set period or achieving performance goals. The compensation expense for restricted stock grants is measured as the fair value of the shares at the grant date and is allocated over the employee's service period.
- **Performance Shares:** These are shares granted contingent on meeting performance goals. The amount of the grant is typically based on performance measures other than stock price changes, such as accounting earnings or return on assets. This approach addresses employees' concerns about stock price volatility, but it may incentivize manipulating accounting numbers. The compensation expense equals the fair value of the shares at the grant date and is spread over the service period.

Stock Options

Similar to stock grants, the compensation expense related to option grants is reported at fair

value under both IFRS and US GAAP. The fair value of these options must be estimated using an appropriate valuation model.

While the fair value of stock grants is usually based on the market value at the grant date and also adjusted for dividends before vesting, the fair value of option grants needs to be estimated. This is because employee stock options typically have features that differ from traded options, making market prices unsuitable for measurement. Choosing the right valuation model is critical in estimating fair value.

Common models include the Black-Scholes option pricing model and binomial models. Accounting standards do not mandate a specific model but require that the chosen method should:

1. Align with fair value measurement principles,
2. Be grounded in established financial economic theory,
3. Reflect all substantive characteristics of the award.

Once a valuation model is chosen, companies must determine the model's inputs, which typically include the exercise price, stock price volatility, estimated life of the option, estimated forfeiture rate, dividend yield, and the risk-free interest rate. Different assumptions combined with various valuation models can significantly affect the estimated fair value of employee stock options.

Accounting for Stock Options

In accounting for stock options, the value of options granted to employees as compensation must be expensed ratably over the period during which services are provided. Several key dates are involved in this process: the grant date, vesting date, exercise date, and expiration date.

- **Grant Date:** This is when the options are initially granted to employees. The service period, which is typically the time between the grant date and the vesting date, is when compensation expense is recognized. The grant date is also when the compensation expense is measured if the number of shares and the option price are known. If the value of the options depends on events occurring after the grant date, the compensation expense is measured when those events are known.

- **Vesting Date:** This is the date when employees can first exercise their stock options. Vesting can occur immediately or over a specified period. If the options vest immediately, the expense is recognized on the grant date. If the options vest after a specified service period, the compensation expense is allocated over that period. For options conditional on achieving performance or market conditions, the expense is recognized over the estimated service period.
- **Exercise Date:** This is when employees exercise their options and convert them into stock.
- **Expiration Date:** If the options are not exercised, they expire at a predetermined date, usually 5 or 10 years from the grant date.

When an option is exercised, the market price at that time is not considered. The expense is calculated based on the fair value at the grant date and is recognized over the vesting period.

The accounting for option exercise is akin to stock issuance. Upon exercise, the company increases its cash for the exercise price paid by the option holder and credits common stock for the par value of the issued stock. Additional paid-in capital is increased by the difference between the par value of the stock and the sum of the grant date fair value of the option and the cash received.

The main accounting requirements for stock options are:

1. Recognize compensation expenses based on the fair value of the option on the grant date. Since no cash is exchanged at the grant, the corresponding entry is additional paid-in capital.
2. Spread the grant date fair value as compensation expense over the vesting period.
3. upon exercise, increase equity by the grant date fair value of the options plus the cash received from the employee.

As the expense is recognized over the vesting period, it reduces retained earnings. The corresponding increase in paid-in capital ensures there is no net impact on total equity.

Other Types of Share-Based Compensation

Stock grants and stock options allow employees to gain ownership in the company. Other forms of share-based compensation, such as stock appreciation rights (SARs) or phantom stock, provide compensation based on changes in share value without requiring employees to hold the shares. As such, these are known as cash-settled share-based compensation.

SARs compensate employees based on the increase in the company's share price, motivating employees and aligning their interests with shareholders. Two additional advantages of SARs include:

- Limited risk aversion: Employees have limited downside risk and unlimited upside potential, similar to stock options.
- No dilution of shareholder ownership.

On the other hand, SARs are valued at fair value, and the compensation expense is spread over the employee's service period. Phantom share plans are similar but differ in that compensation is based on hypothetical stock performance rather than the company's actual stock.

Question 1

Which statement is *most likely* correct about the financial reporting of defined benefit pension plans under IFRS?

- A. Actuarial gains and losses are recognized as pension expenses over time.
- B. The service cost component includes interest income on plan assets.
- C. The net pension asset or liability changes have three components recognized on the income statement.

Solution

The correct answer is C.

Under IFRS, the change in the net pension asset or liability each period is generally viewed as having three components, two of which (service costs and net interest expense or income) are recognized as pension expense on the income statement. The third component, remeasurements, is recognized in other comprehensive income and is not amortized into profit or loss over time.

A is incorrect because under IFRS, actuarial gains and losses (part of remeasurements) are recognized immediately in other comprehensive income, not recognized as pension expenses over time.

B is incorrect because the service cost component does not include interest income on plan assets. Instead, it represents the present value of the increase in pension benefits earned by employees during the current period, and it does not have a direct connection with the interest income on plan assets. The interest income on plan assets is part of the net interest on the net defined benefit liability (asset), which is another component separate from the service cost.

LOS 8c: describe the financial statement presentation of and disclosures relating to long-term liabilities and share-based compensation

Presentation and Disclosure of Leases

Both IFRS and US GAAP state that the purpose of lease disclosures is to provide financial statement users with information to evaluate the amount, timing, and uncertainty of cash flows related to leases.

On the balance sheet, the non-current assets section typically includes a "right of use" asset, while the non-current (long-term) liabilities section usually includes the lease liability. However, some companies might not have separate line items for leases due to the size of leased assets and obligations and may report leases under "Other assets" or "Other liabilities."

Additionally, lessees and lessors must disclose quantitative and qualitative information about their leases, including significant judgments made to comply with lease accounting standards. They must also disclose the amounts recognized in the financial statements related to leases and their locations on those statements.

Lessee Disclosure

Under IFRS 16, lessee disclosures include the following for the current reporting period:

- Carrying amount of right-of-use assets by asset class and the end of the reporting period by class of underlying asset.
- Total cash outflows for leases
- Interest expense on lease liabilities
- Depreciation charges for right-of-use assets by asset class
- Additions to right-of-use assets

Additionally, lessees should disclose a maturity analysis of lease liabilities separately from other

financial liabilities such as bonds and loans. They should also provide additional quantitative and qualitative information about their leasing activities to help users of financial statements assess the nature and future cash outflows of these activities. This analysis should include:

- the nature of the lessee's leasing activities.
- future cash outflows to which the lessee is potentially exposed but are not reflected in the measurement of lease liabilities.
- restrictions or covenants imposed by leases.
- sale and leaseback transactions.

Lessor Disclosure

IFRS 16 specifies different disclosure requirements for lessors. Like lessees, lessors must provide information (either in the notes or the financial statements) that allows users to assess the impact of leases on the lessor's financial position, performance, and cash flows.

At a minimum, lessors should disclose the following regarding finance leases:

-
- Finance income on the net investment in the lease.
- Income relating to variable lease payments not included in the measurement of the lease.

For the operating leases, lease income, with separate disclosure for income related to variable lease payments not based on an index or rate, should be disclosed.

Additionally, lessors must provide qualitative and quantitative information about their leasing activities, helping users understand the nature of these activities and how the lessor manages risks associated with any rights retained in the underlying leased assets.

For instance, regarding finance leases, lessors should explain significant changes in the carrying

amount of the net investment and provide a maturity analysis of receivable lease payments. This analysis should show undiscounted lease payments to be received annually for at least the first five years and a total amount for any remaining years.

On the other hand, regarding the operating leases, lessors should disclose disaggregated information about each class of property, plant, and equipment subject to operating leases. They should also provide a maturity analysis of lease payments, showing undiscounted lease payments to be received annually for at least the first five years and a total amount for the remaining years.

Presentation and Disclosure of Postemployment Plans

Disclosures for defined benefit and defined contribution pension plans are typically provided in the notes to the financial statements, with disclosures for defined benefit plans being more detailed.

International Accounting Standard 19 (IAS 19) requires issuers to disclose the amount recognized on the income statement during the period for defined contribution plans. However, regulators may mandate more extensive disclosures.

IAS 19 outlines the following objectives for disclosures of defined benefit pension plans:

- Explain the characteristics and associated risks of the defined benefit plans.
- Identify and explain the amounts in the financial statements related to the defined benefit plans (i.e., the net pension asset or liability).
- Explain how the defined benefit plans might affect the entity's future cash flows in terms of amount, timing, and uncertainty.

While IAS 19 is principles-based and allows issuers discretion in meeting disclosure objectives, it specifies several required disclosures, such as:

- The nature of the benefits provided, the regulatory framework of the plan, governance,

and risks associated with the plan.

- A reconciliation from the opening to the closing balance of the net pension asset or liability, with separate reconciliations for plan assets and the present value of the defined benefit obligation, including service costs, interest income or expense, remeasurements, past service costs, contributions to the plan, and other components.
- A sensitivity analysis indicating how changes in significant assumptions, like the discount rate used to measure the defined benefit obligation, would affect the financial statements.
- The composition of plan assets by category, such as equity securities, fixed-income securities, and real estate.
- Indications of how the defined benefit pension plans impact the entity's future cash flows.

Presentation and Disclosures of Share-Based Compensation

Companies are mandated to disclose information about their share-based compensation programs to help users of the financial statements understand the nature and scope of these arrangements, including current and expected future cash flows and expenses.

These disclosures are typically included in the notes to the financial statements. According to IFRS 2, required disclosures include:

- **Description of Share-Based Payment Arrangements:** Covers general terms and conditions, such as vesting requirements, the maximum term of options granted, and the method of settlement (cash or equity).
- **Details on Options: Specifically,** the number and weighted average exercise price of options, including:
 - Number outstanding at the beginning of the period.
 - Number granted during the period.

- Number forfeited during the period.
 - Number exercised during the period.
 - Number expired during the period.
 - Number outstanding at the end of the period.
 - Number exercisable at the end of the period.
- **Other Equity Instruments:**
 - The number and weighted average fair value of other equity instruments (besides share options) granted during the period.
 - Information on how the fair value of these equity instruments was measured.

Question #1

Which of the following disclosures is required for lessees under IFRS 16?

- A. The details of net interest expense on lease liabilities.
- B. The depreciation charges for right-of-use assets by asset class.
- C. The future market value projections of leased assets.

Solution

The correct answer is **B**.

Under IFRS 16, lessees are required to disclose depreciation charges for right-of-use assets by asset class as part of their current reporting period disclosures.

Question #2

Which of the following is generally a goal of a share-based compensation plan?

- A. Recruiting new staff members
- B. Increasing executive pay
- C. Aligning employees' interests with managerial objectives

Solution

The correct answer is **A**.

Share-based compensation plans are typically designed to attract new employees by offering them a share in the company's future success as part of their compensation package. These plans also aim to retain and motivate existing employees by aligning their interests with the goals of the company. By giving employees a stake in the company, share-based compensation plans encourage employees to contribute to the company's growth and profitability, benefiting both the employees and the company in the long term.

Learning Module 9: Analysis of Income Taxes

LOS 9a: contrast accounting profit, taxable income, taxes payable, and income tax expense and temporary versus permanent differences between accounting profit and taxable income

Accounting profit, also known as income before taxes, is reported on a company's income statement according to prevailing accounting standards. By definition, accounting profit does not account for income tax expense.

Taxable income is the portion of a company's income subject to income taxes following the jurisdiction's tax laws within which a company operates. Taxable income determines the company's income tax payable (a liability) or recoverable (an asset), which is reflected on the balance sheet. Consequently, the income tax paid during a period is the actual cash amount paid for income taxes, reducing the income tax payable.

The **tax base** of an asset or liability is the amount at which it is valued for tax purposes. In contrast, the **carrying amount** is the amount at which it is valued according to accounting principles. Differences between the tax base and carrying amount result in differences between the accounting profit and taxable income.

The tax base of an asset or liability is the amount assigned to it for tax purposes, while the carrying amount is the value recorded in the financial statements. Differences between the tax bases and carrying amounts can arise due to variations in accounting standards and tax laws.

Common differences include:

- **Timing Differences:** Revenues and expenses may be recognized in one accounting period and in another for tax purposes.
- **Recognition Differences:** Certain revenues and expenses may be recognized for accounting purposes but not for tax purposes, or vice versa.
- **Deductibility Differences:** The deductibility of gains and losses on assets and liabilities may differ for accounting and tax purposes.

- **Tax Loss Carryforwards:** Subject to tax rules, tax losses from prior years might be used to reduce taxable income in future years, leading to differences between accounting income and taxable income.
- **Adjustment Differences:** Adjustments of reported financial data from previous years may not be recognized equally for accounting and tax purposes or may be recognized in different periods.

Differences between the tax base and the carrying amount of liabilities (and, consequently, between taxable income and accounting profit) can be categorized as either temporary or permanent.

Taxable Temporary Differences

Temporary differences are divided into two categories: taxable temporary differences and deductible temporary differences.

Taxable Temporary Differences

Taxable temporary differences occur when the carrying amount of an asset exceeds its tax base, or when the tax base of a liability exceeds its carrying amount. For example, this might happen with accelerated depreciation, where the asset's carrying amount is higher than its tax base at the end of the year. Taxable temporary differences lead to the recognition of **deferred tax liabilities**.

Deductible Temporary Differences

Deductible temporary differences are those that will reduce taxable income in future periods when the related balance sheet item is recovered or settled. These differences create a **deferred tax asset** when the tax base of an asset is higher than its carrying amount or when the carrying amount of liability exceeds its tax base. Recognition of a deferred tax asset is only permitted if it is likely that there will be future profits against which the asset or liability can be settled or

recovered.

To determine if there will be sufficient future profits to utilize the deferred tax asset, the following must be considered:

1. There must be enough taxable temporary differences associated with the same tax authority and taxable entity.
2. The taxable temporary differences should be expected to reverse in the same periods as the deductible temporary differences.

The following table summarizes the differences between the tax bases and carrying amounts of assets and liabilities result in deferred tax assets or deferred tax liabilities:

Balance Sheet Item	Carrying Amount vs. Tax Base	Deferred Tax Asset or Liability
Asset	Carrying amount > tax base	Deferred tax liability
Asset	Carrying amount < tax base	Deferred tax asset
Liability	Carrying amount > tax base	Deferred tax asset
Liability	Carrying amount < tax base	Deferred tax liability

Permanent Differences

Permanent differences are discrepancies between tax laws and accounting standards that will not be reversed in the future. Since these differences do not reverse, they do not lead to deferred tax but rather result in a disparity between the company's effective tax rate and the statutory corporate income tax rate.

Examples of permanent differences include:

- Income or expense items not permitted by tax laws, such as penalties and fines that are recognized as expenses in financial reporting but are not tax-deductible.
- Tax credits for certain expenditures that reduce taxes directly, such as credits for purchasing solar power systems or electric vehicles, are provided by tax authorities to incentivize these purchases.

Example: Demonstrating Taxable Temporary Differences and Permanent Differences

Consider the following assets and liabilities of a company, with their current amounts, tax bases and temporary differences where applicable:

Item	Carrying Amount (euros)	Tax Base (euros)	Temporary Difference (euros)	Will it Result in Deferred Tax Asset or Liability
1. Loan (capital)	600,000	600,000	0	?
2. Interest paid	0	0	0	?
3. Development costs	2,750,000	2,500,000	250,000	?
4. Research costs	0	400,000	(400,000)	?
5. Accounts receivable	1,600,000	1,300,000	300,000	?
6. Donations	0	0	0	?
7. Interest received in advance	350,000	0	(350,000)	?
8. Rent received in advance	11,000,000	0	(11,000,000)	?
9. Dividends receivable	1,200,000	1,200,000	0	?

Given the values of the table, for each asset or liability, determine whether the temporary differences will lead to deferred tax asset or liability.

Solution

Here is the completed table and discussions:

Item	Amount (euros)	Tax Base (euros)	Temporary Difference (euros)	Will it Result in Deferred Tax Asset or Liability
1. Loan (capital)	600,000	600,000	0	N/A
2. Interest paid	0	0	0	N/A
3. Development costs	2,750,000	2,500,000	250,000	DTL
4. Research costs	0	400,000	(400,000)	DTA
5. Accounts receivable	1,600,000	1,300,000	300,000	DTL
6. Donations	0	0	0	N/A
7. Interest received in advance	350,000	0	(350,000)	DTA
8. Rent received in advance	11,000,000	0	(11,000,000)	DTA
9. Dividends receivable	1,200,000	1,200,000	0	N/A

- **Loan:** No temporary differences arise from the loan or interest paid; hence, no deferred tax items are recognized.
- **Interest paid:** No temporary differences result from interest paid, and therefore, no deferred tax asset or liability is recognized.
- **Development costs:** The discrepancy between the carrying amount and tax base represents a temporary difference that will eventually reverse, creating a deferred tax liability for this fiscal period.
- **Research costs:** The variation between the carrying amount and tax base generates a temporary difference, resulting in a deferred tax asset. A deferred tax asset occurs when more taxes are paid upfront than necessary (when taxable income exceeds accounting profit), with the expectation of recovery in future periods. According to accounting standards, the entire amount was deducted, thus lowering the accounting profit, while taxable income remains higher due to reduced expenses.

- **Accounts receivable:** The difference between the asset's carrying amount and tax base is a temporary difference that results in a deferred tax liability.
- **Donations:** It is assumed that tax laws do not permit deductions for donations, leading to no temporary difference. This is considered a permanent difference, and thus, no deferred tax asset or liability is recognized.
- **Interest received in advance:** This situation creates a temporary difference, resulting in a deferred tax asset. Deferred tax asset forms due to excess tax payments (when taxable income is higher than accounting profit) are anticipated to be recuperated in future periods.
- **Rent received in advance:** The difference between the carrying amount and tax base creates a temporary difference, leading to the recognition of a deferred tax asset.
- **Dividends receivable:** Since dividends are non-taxable, their carrying amount is equal to their tax base, which creates a permanent difference. This does not result in the recognition of a deferred tax asset or liability. Permanent differences are not reversed over time and arise from specific tax legislation that excludes certain incomes, like dividends from a subsidiary, from being taxed. Consequently, the dividends received do not affect the taxable income, resulting in a permanent disparity between taxable income and accounting profit.

Tax Expense (Provision for Income Taxes)

A company's tax expense is reported on its income statement and includes both the income tax payable (or recoverable in the case of a tax benefit) and any changes in deferred tax assets and liabilities. This method adheres to the matching principle, ensuring that the tax effects of all current period activities are reported rather than only the income taxes actually paid.

Question

Which of the following statements *accurately* describes an occurrence of a difference between accounting profit and taxable income?

- A. The tax base and carrying amount of assets and liabilities are the same.
- B. The tax losses of previous years cannot be used to reduce the taxable income in later years.
- C. Revenues and expenses may be recognized in one reporting period for accounting purposes and in another period for tax purposes.

Solution

The correct answer is **C**.

The statement, “revenues and expenses may be recognized in one reporting period for accounting purposes and in another for tax purposes,” provides an example of a difference between accounting profit and taxable income.

LOS 9b: explain how deferred tax liabilities and assets are created and the factors that determine how a company's deferred tax liabilities and assets should be treated for the purposes of financial analysis

Recall that deferred tax assets and liabilities originate from temporary differences between financial accounting profit and taxable income. Specifically, deferred tax assets indicate taxes that have already been paid or losses carried forward from prior periods but are not yet reflected on the income statement. On the other hand, deferred tax liabilities arise when the tax expense recorded for financial accounting exceeds the tax expense per tax regulations.

At the end of each reporting period, companies compare the tax bases and carrying amounts of balance sheet items to recalculate deferred tax assets and liabilities. These adjustments are combined with income tax payable to determine the company's income tax expense (or credit) on the income statement.

When statutory tax rates change, the reported value of deferred tax assets and liabilities must be adjusted accordingly. For example, if the corporate tax rate is reduced from 35% to 30%, the value of deferred tax assets decreases because the future tax benefit is reduced. Similarly, the value of deferred tax liabilities decreases as the future tax obligation diminishes.

Treatment of Deferred Tax Liabilities and Assets for the Purposes of Financial Analysis

Assume that a company depreciates its machinery on a straight-line basis at a rate of 8% per year. However, tax authorities allow for a depreciation rate of 12% per year. Consequently, at the end of the fiscal year, this creates a situation where the carrying amount of the machinery for accounting purposes is higher than its tax base, resulting in a temporary difference.

A deferred tax asset can be created if the company expects to realize the economic benefit of this asset in the future. In this scenario, since the machinery is essential to the company's core business and the company is a going concern with stable earnings, it is reasonable to expect future economic benefits from the machinery. Therefore, creating a deferred tax asset would be appropriate.

Conversely, if there were doubts about the realization of future economic benefits from the temporary difference, for example, when the company is liquidated, the temporary difference would not result in the recognition of a deferred tax asset.

It is important to note that if a deferred tax asset had been recognized previously but doubts arose about the realization of economic benefits, then under IFRS, the deferred tax asset would be reversed. However, under US GAAP, a valuation allowance would be set up to reduce the deferred tax asset to the amount that is more likely than not to be realized.

It is crucial to note that management discretion plays a significant role in assessing temporary differences and the likelihood of future economic benefits.

Example: Treatment of Deferred Tax Liabilities and Assets for the Purposes of Financial Analysis

A hypothetical company, Galaxy Manufacturing, reports under IFRS. A snippet of the company's consolidated income statement is given below:

Period Ending 31 December	Year 3	Year 2	Year 1
Revenue	\$50,000	\$40,000	\$30,000
Other net gains	3,000	0	0
Changes in inventories	600	300	400
Raw materials Costs	(6,500)	(5,000)	(9,000)
Depreciation expense	(2,500)	(2,500)	(2,500)
Other expenses	(7,000)	(6,800)	(5,500)
Interest expense	(2,500)	(3,500)	(7,000)
Profit before tax	\$35,100	\$22,500	\$6,400

In the above income statement, assume that all income and expenses on the income statement are treated identically for tax and accounting purposes except for depreciation related to equipment owned by Galaxy Manufacturing. Moreover, assume the equipment was purchased at the beginning of Year 1 for \$25,000. As such, depreciation should thus be calculated and expensed for the full year.

Accounting standards (IFRS in this case) permit equipment to be depreciated on a straight-line basis over a 10-year period, while tax standards specify depreciation over a 7-year period. Assume a salvage value of \$0 at the end of the equipment's useful life. Assume a tax rate of 30%.

From the above information,

1. Calculate the taxable income of the company
2. Calculate the carrying amount and tax base for the equipment
3. Determine whether the difference in the depreciation method in determining accounting profit and taxable income results in deferred tax liability or asset. Also, the value for each year will be determined.
4. Determine income tax expense for each year.

Solution

Taxable income:

The equipment was initially acquired for \$25,000. According to accounting standards, the company will recognize annual depreciation of \$2,500 ($= \frac{\$25,000}{10}$) over the next 10 years, which will be recorded as an expense on the income statement and used to calculate accounting profit (as demonstrated in the data above).

For tax purposes, however, the company will recognize \$3,571 ($\approx \frac{\$25,000}{7}$) in yearly depreciation. Consequently, the depreciation expense will differ each fiscal year for tax and accounting purposes (tax base vs. carrying amount), leading to a difference between accounting profit and taxable income. The taxable income for each fiscal year is outlined below:

Period Ending 31 December	Year 3	Year 2	Year 1
Revenue	\$50,000	\$40,000	\$30,000
Other net gains	3,000	0	0
Changes in inventories	600	300	400
Raw materials Costs	(6,500)	(5,000)	(9,000)
Depreciation expense	(3,571)	(3,571)	(3,571)
Other expenses	(7,000)	(6,800)	(5,500)
Interest expense	(2,500)	(3,500)	(7,000)
Taxable income	\$34,029	\$21,429	\$5,329

Carrying amount and tax base for the equipment:

At the end of each balance sheet date, it is necessary to determine the tax base and carrying amount of all assets and liabilities, as shown below:

Year	Year 3	Year 2	Year 1
Equipment value for accounting purposes (carrying amount) with Dep. of \$2,500 per year	\$17,500	\$20,000	\$22,500
Equipment value for tax purposes (tax base) with Dep. of \$3,571 per year	\$14,286	\$17,857	\$21,429
Difference	\$3,214	\$2,143	\$1,071

Value of Deferred Tax asset or Liability:

Remember that if the tax obligation is calculated based on accounting profits, it will differ due to the differences between the tax base and the carrying amount of the equipment. The table above highlights this difference.

In each fiscal year, the carrying amount of the equipment exceeds its tax base. Consequently, the asset's tax base is lower than its carrying value according to financial accounting principles for tax purposes. This difference results in a deferred tax liability, as shown in the following table:

Year	Year 3	Year 2	Year 1
Deferred tax liability	\$964	\$643	\$321

Note that the above values are calculated as:

$$\text{Deferred tax liability} = (\text{Tax base} - \text{Carrying amount}) \times \text{tax rate}$$

So that,

$$\text{Year 1: } (\$22,500 - \$21,429) \times 30\% = \$321$$

$$\text{Year 2: } (\$20,000 - \$17,857) \times 30\% = \$643$$

$$\text{Year 3: } (\$17,500 - \$14,286) \times 30\% = \$964$$

Income tax expense for each year:

Intuitively, the different treatment of depreciation creates a temporary difference, leading to the income tax on the income statement being 30 percent of the accounting profit. However, only a portion of this is income tax payable, with the remainder being a deferred tax liability. Therefore, on the income statement, the company's income tax expense will be the sum of the change in the

deferred tax liability and the income tax payable, as shown below:

Year	Year 3	Year 2	Year 1
Income tax payable (based on tax accounting)	\$10,209	\$6,429	\$1,599
Change in deferred tax liability	\$321	\$322	\$321
Income tax expense (based on financial accounting)	\$10,530	\$6,751	\$1,920

Note that if there was a presence of both deferred tax liabilities and assets, income tax expense would be calculated as:

$$\begin{aligned} \text{Income tax expense} = & \text{Taxes payable plus} \\ & \text{net increase in deferred tax liabilities} \\ & \text{less} \\ & \text{net increase in deferred tax assets} \end{aligned}$$

Given all the information above, we can now present the consolidated income statement of Galaxy Manufacturing, reflecting the income tax as shown below:

Period Ending 31 December	Year 3	Year 2	Year 1
Revenue	\$50,000	\$40,000	\$30,000
Other net gains	3,000	0	0
Changes in inventories of finished goods and work in progress	600	300	400
Raw materials and consumables used	(6,500)	(5,000)	(9,000)
Depreciation expense	(2,500)	(2,500)	(2,500)
Other expenses	(7,000)	(6,800)	(5,500)
Interest expense	(2,500)	(3,500)	(7,000)
Profit before tax	\$35,100	\$22,500	\$6,400
Income tax	(10,530)	(6,751)	(1,920)
Profit after tax	\$24,570	\$15,749	\$4,480

Question

Which of the following statements is the *least accurate*?

- A. Deferred tax assets and liabilities are recalculated at the end of each financial year.
- B. Deferred tax assets and liabilities are based on permanent differences, which result in a company paying an excess or deficit amount for taxes.
- C. A deferred tax asset or liability will not be created if there is no guarantee that future economic benefits will be derived from a temporary difference.

Solution

The correct answer is **B**.

Deferred tax assets and liabilities are based on temporary, not permanent, differences that result in a company paying an excess or deficit amount for taxes.

Options A and C are correct statements.

LOS 9c: calculate, interpret, and contrast an issuer's effective tax rate, statutory tax rate, and cash tax rate

Income taxes payable are mainly influenced by the geographic distribution of taxable income of the company and the corresponding tax rates in each location, but the nature of the business can also have an impact. For instance, some companies receive favorable tax treatment, such as R&D tax credits or accelerated depreciation for fixed assets.

Types of Tax Rates

Variations in tax rates can significantly influence a company's value. Generally, three types of tax rates are essential for analysts:

1. **Statutory Tax Rate:** The corporate income tax rate in the country where the company is based.
2. **Effective Tax Rate:** It is calculated by dividing the reported income tax expense on the income statement by the pre-tax income.
3. **Cash Tax Rate:** The tax paid in cash during the period, divided by pre-tax income.

Forecasting Tax Expenses and Rates

Recall that differences between cash taxes and reported taxes usually arise from discrepancies between financial accounting standards and tax laws, as well as from changes in deferred tax assets or liabilities.

When predicting tax expenses and cash taxes, the effective tax rate and cash tax rate are crucial. Moreover, understanding the operational factors and financial structure of a company is beneficial for forecasting these tax rates.

Differences between the statutory tax rate and the effective tax rate can occur for various reasons, such as tax credits, withholding tax on dividends, adjustments to prior years, and non-deductible expenses. Effective tax rates may also vary when companies operate internationally, as the effective tax rate becomes an average of the tax rates of the countries where the company operates, weighted by the profit (before tax) generated in each country.

Consequently, if a company earns higher profits in countries with higher tax rates and lower profits in countries with lower tax rates, the effective tax rate will be a weighted average, typically higher than the simple average of the tax rates.

Additionally, consistently lower effective tax rates compared to statutory rates or the rates reported by competitors is not necessarily unusual but may require further analysis when forecasting future tax expenses. Financial statement notes should provide a reconciliation between the statutory tax rate and the effective rate, highlighting items that cause significant variations in the effective tax rate.

The cash tax rate is useful for forecasting cash flows, while the effective tax rate is relevant for projecting earnings on the income statement.

When developing an estimated tax rate for forecasts, analysts should adjust for one-time events. For instance, if income from equity-method investees constitutes a large and volatile part of pre-tax income, excluding this amount from the effective tax rate calculation may provide a better estimate of future tax costs.

A good starting point for estimating future tax expense is a tax rate based on normalized operating income. Normalized operating income implies excluding results from associates and special items to provide a reliable indication of future tax expense, adjusted for special items, in an analyst's earnings model.

Creating a model allows the calculation of the effective tax amount in profit and loss projections and the cash tax amount in the cash flow statement or as supplemental information. Note that the difference between the profit and loss tax amount and the cash flow tax figures should correspond to changes in deferred tax assets or liabilities.

Example: Analyzing Effective Tax Rates

Dolie, a confectionery manufacturer, operates in countries C and E. Table 1 contains information on both countries' tax rates. In year one, both countries' earnings before tax (EBT) are the same.

Table1: Tax rates in different jurisdictions.

	Country C	Country E	Total
EBT	250	250	500
Effective tax rate	15%	35%	25%
Tax	37.5	87.5	125
Net profit	212.5	162.5	375

If earnings before tax for country C increase by 10 percent per year while earnings before tax for country E remain the same for the next three years, what will happen to the effective tax rate?

Solution

Consider the following table:

Table 2: Tax Estimate Problem

Year	0	1	2	3
EBT, Country C	250	275	302.5	332.75
Growth rate		10%	10%	10%
EBT, Country E	250	250	250	250
Growth rate		0%	0%	0%
Total EBT	500	525	552.5	585.75
Effective tax rate, Country C	15%	15%	15%	15%
Effective tax rate, Country E	35%	35%	35%	35%
Total tax	125	128.75	132.88	137.41
Total effective tax rate	25%	24.5%	24%	24.5%

The effective tax rate will gradually decline since a higher proportion of EBT is generated in the country with the lower tax rate.

Note that the total effective rate is the average of the effective tax rates of the countries where the company operates, weighted by the profit (before tax) generated in each country.

For instance, the total effective tax for year 0 is calculated as:

$$\begin{aligned}\text{Effective tax rate} &= \frac{250}{500} \times 15\% + \frac{250}{500} \times 35\% \\ &= 25\%\end{aligned}$$

Question 1

AlphaTech, a hypothetical company based in Canada, also has significant operations in Germany. The statutory tax rate in Canada is 26%, while the statutory tax rate in Germany is 15%. Assume AlphaTech earns CAD 2,000 in profit before taxes in each country during year 20X1.

On January 1 of the following year, 20X2, AlphaTech acquires Beta Corp, which is domiciled in Japan. The statutory tax rate in Japan is 23%. Beta Corp earns CAD 1,000 in profits in 20X2. Assuming that Canadian and German operations each increase pre-tax profits by 20%, the effective tax rate in 20X2 for the consolidated entity is *closest to*:

1. 18.4%
2. 19.8%
3. 20.9%

The correct answer is C.

Recall that the effective tax rate is calculated by dividing the reported income tax expense on the income statement by the pre-tax income. As such, the effective tax rate in 20X2 for the consolidated Alphatec is calculated in the table below:

Country	Taxable Income	Statutory Rate	Taxes
Canada	CAD 2,400	26%	CAD 624.00
Germany	CAD 2,400	15%	CAD 360.00
Japan	CAD 1,000	23%	CAD 230.00
Total	CAD 5,800		CAD 1,214.00

Therefore, the effective tax rate is:

$$\text{Effective tax rate} = \frac{1,214}{5,800} = 20.9\%$$

Question 2

When might an effective tax rate consistently lower than statutory or competitors' rates warrant additional analyst attention?

- A. When forecasting future tax expenses.
- B. When it is reported in the financial statements.
- C. When it is consistently lower than statutory rates.

Solution

The correct answer is A.

An effective tax rate consistently lower than statutory or competitors' rates might warrant additional attention when forecasting future tax expenses.

LOS 9d: analyze disclosures relating to deferred tax items and the effective tax rate reconciliation and explain how information included in these disclosures affects a company's financial statements and financial ratios

Income tax disclosures included in the notes to financial statements can provide analysts with very useful information. Therefore, including income tax disclosures in the notes to financial statements can have a material impact on financial statement analysis, including the derivation of financial ratios.

Disclosures relating to deferred tax items and effective tax rate reconciliation are important because:

- Income tax disclosures can be used to reconcile how a company's income tax provision was determined, beginning with its reported income before taxes.
- Disclosures can highlight the current income tax provision and indicate if the net income tax provision results from offsetting by deferred tax benefits.
- Whether in percentage terms or absolute dollar amounts, disclosures may also display the reconciliation of how income tax provisions are derived from the US federal statutory rate.
- Disclosures can provide detailed information on the derivation of deferred tax assets and liabilities.
- Disclosures can indicate if any valuation allowance was applied against net deferred tax assets. An explanation may also be found for why the valuation allowance has changed.
- Disclosures also help to determine if there is any operating loss carryforwards or unused tax credits.

Impact of Disclosures on Financial Statements and Ratios

Other considerations relating to the usefulness of disclosures include the following:

- A change in the federal statutory tax rate could make net deferred assets less valuable.
- As reported on the income statement, a reduction in the valuation allowance could lead to a reduction in the income tax provision. Similarly, it can occasion a decline in reported income taxes in future periods.
- A company acquiring another company may use the target company's tax loss carry-forwards to offset its tax liabilities. The value to the acquiring company would be the present value of the carry-forwards, based on the acquiring company's tax rate and expected realization time. The higher the profitability and tax rate of an acquiring company, the sooner it will be able to benefit.
- A deferred tax liability should be classified as debt if it's expected to reverse with subsequent tax payment(s). If the liability is not expected to reverse, it should be treated as equity. Additionally, a deferred tax liability should be excluded from debt and equity in case of uncertainty on the amounts and timing of tax payments arising from the reversal of temporary differences. These classifications (debt or equity) will affect the computation of financial ratios involving debt or equity, such as profitability ratios.

Question 1

GammaCorp's tax provision resulted in effective tax rates attributable to earnings from ongoing operations, excluding the cumulative effect of changes in accounting principles, which differed from the statutory corporate income tax rate of 30%, as detailed below:

Year Ended 31 December	Year 3	Year 2	Year 1
Expected corporate income tax expense (benefit)	(\$ 120,000)	\$780,000	\$690,000
Change in Valuation allowance for deferred tax asset	(160,000)	(770,000)	(760,000)
Income tax expense	230,000	60,000	85,000

Over the three years shown, adjustments to the valuation allowance for deferred tax assets most likely indicate:

- A. increased likelihood of future profitability.
- B. a decreased likelihood of future profitability.
- C. assets being carried at a value lower than their tax base.

The correct answer is A.

Throughout the three-year period, adjustments to the valuation allowance reduced cumulative income taxes by USD 1,830,000 (= USD 160,000 + USD 770,000 + USD 760,000). The reductions in the valuation allowance indicate that the company is "more likely than not" to generate enough taxable income to utilize the deferred tax assets.

Question 2

Which of the following statements is the *least* accurate?

- A. An acquiring company may not use a target company's tax loss carry-forwards to offset own tax liabilities.
- B. A deferred tax liability should be classified as debt if expected to reverse with a subsequent tax payment.
- C. Note disclosures can indicate the reconciliation of how income tax provisions are derived from the US federal statutory rate.

Solution

The correct answer is **A**.

An acquiring company may use a target company's tax loss carry forward to offset its tax liabilities.

Options B and C are correct statements.

Learning Module 10: Financial Reporting Quality

LOS 10a: compare financial reporting quality with quality of reported results (including quality of earnings, cash flow, and balance sheet items)

Generally, analysts would always have access to financial reports that follow strong financial reporting standards, such as those issued by the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB), and that are free from any manipulation. However, in reality, the quality of financial reports can vary significantly. High-quality financial reporting offers information that is valuable for analysts in evaluating a company's performance and future prospects. In contrast, low-quality financial reporting may include incorrect, misleading, or incomplete information.

Financial Reporting Quality vs. Quality of Reported Results

Financial reporting quality, focuses on the reliability and usefulness of information provided in financial reports, including notes and disclosures. As such, high-quality financial reporting offers relevant information that accurately reflects the economic activities of a company during the reporting period, as well as its financial condition at the end of the period.

On the other hand, earnings quality pertains to the earnings and cash flow generated by the company's actual economic activities and the resulting financial position.

More specifically, "earnings quality" is a term often used to describe the reliability and sustainability of earnings, cash flows, or balance sheet items. High-quality earnings are those generated from activities that are likely to continue in the future and that provide an adequate return on investment.

Earnings quality and financial reporting quality are closely linked because an accurate assessment of earnings quality requires a basic level of financial reporting quality. As financial reporting quality improves, the ability of users to accurately evaluate earnings quality and predict future performance also improves.

Consider the following table:

	Low Reporting Quality	High Reporting Quality Quality
High Earning (Results) Quality	Low financial reporting quality impedes assessment of earnings quality and impedes valuation.	High financial reporting quality enables assessment. High earnings quality increases company value.
Low Earning (Results) Quality	Low financial reporting quality impedes assessment of earnings quality and impedes valuation.	High financial reporting quality enables assessment. Low earnings quality decreases company value.

High-quality financial reports provide information that is relevant, complete, neutral, and free from errors. In contrast, the lowest-quality reports may contain information that is entirely fabricated. The quality of earnings can also vary, ranging from high and sustainable to low and unsustainable. Resource providers typically prefer earnings that are both high in quality and sustainable.

When combining the measures of financial reporting quality and earnings quality, the overall quality of financial reports can be viewed on a continuum. This continuum spans from the highest quality reports, which offer high financial reporting quality and reflect high and sustainable earnings quality, to the lowest quality reports, which are not useful due to poor financial reporting quality.

Question 1

Information provided by low-quality earnings *most likely* pertains to:

- A. Low earnings quality decreases company value.
- B. High-quality financial reports contain information that is subjective and fabricated.
- C. Financial reporting quality can range from high and sustainable to low and unsustainable.

Solution

The correct answer is **A**.

Low earnings quality decreases company value.

B is incorrect. Low-quality, not high-quality, financial reports contain subjective and fabricated information.

C is incorrect. It is earnings quality, not financial reporting quality, which can range from high and sustainable to low and unsustainable.

Question 2

To determine the quality of the information provided in the financial reports of a given company, an analyst should *most likely* examine:

- A. The quality of earnings.
- B. The quality of the financial reports.
- C. Both the quality of the financial reports and the quality of earnings.

Solution

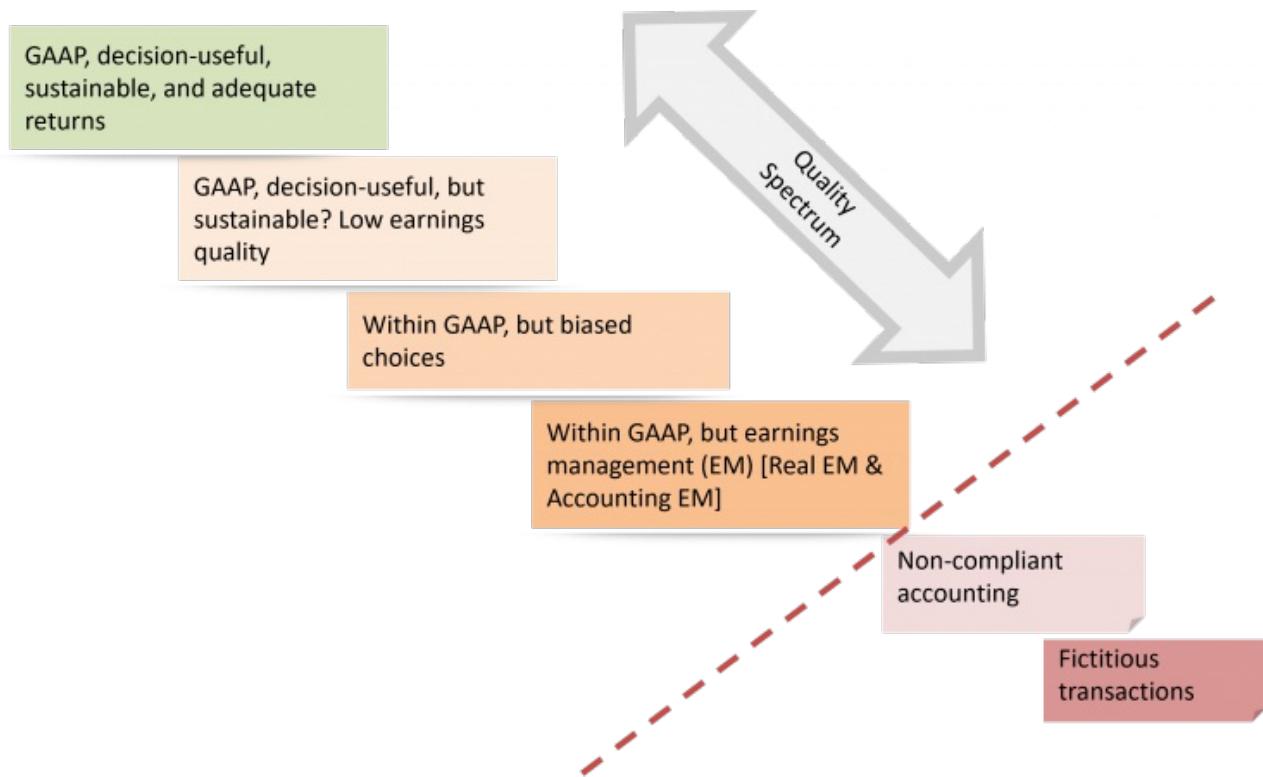
The correct answer is **B**.

To determine the quality of the information provided in the financial reports of a given company, an analyst should examine the quality of the financial reports. In addition, they should check the quality of earnings to verify the sustainability of the earnings.

LOS 10b: describe a spectrum for assessing financial reporting quality

Quality Spectrum of Financial Reports

The spectrum of financial reporting quality serves as a basis for evaluating the quality of different reports. This spectrum ranges from high-quality financial reports with sustainable earnings to reports that are unreliable and lack useful information due to poor financial reporting quality, as shown below:



GAAP, Decision-useful, Sustainable, and Adequate Returns

At the top of the quality spectrum, marked as “GAAP, decision-useful, sustainable, and adequate returns” in the above diagram, are high-quality reports that deliver valuable information about high-quality earnings, with the following aspects:

- **GAAP Compliance:** High-quality financial reports adhere to the generally accepted accounting principles (GAAP) of the relevant jurisdiction, such as International Financial Reporting Standards (IFRS), US GAAP, or other national GAAP.

- **Decision-Useful Information:** Beyond just conforming to GAAP, high-quality reports possess characteristics that make the information useful for decision-making, such as those outlined in the Conceptual Framework.

Recall that, in the conceptual framework, the fundamental qualities of useful information are relevance and faithful representation. Relevant information can influence decisions and encompasses materiality, meaning it is significant enough that its omission or misstatement could affect users' decisions based on the financial information of a specific entity. Faithful representation means the information accurately depicts economic events, being complete, neutral, and free from error.

Moreover, the conceptual framework also identifies the qualities of useful information that are enhanced: comparability, verifiability, timeliness, and understandability. However, creating high-quality financial reports involves balancing these characteristics.

- **High-Quality Earnings:** High-quality earnings provide an adequate return on investment and stem from activities that are likely to be sustainable. An adequate return exceeds the cost of the investment and meets or surpasses expected returns. Sustainable activities and earnings are those expected to continue recurring. Sustainable earnings that yield a high return on investment enhance the valuation of a company and its securities.

GAAP, Decision-Useful, but Sustainable?

The second level down in the spectrum, marked as “GAAP, decision-useful, but sustainable?” represents situations where high-quality reporting provides useful information, but the results or earnings reflected in that information are not sustainable, indicating lower earnings quality.

Specifically, the earnings may not be sustainable because the company is unlikely to generate the same return on investment in the future. This could be due to various reasons, such as market changes, competitive pressures, or internal challenges. Alternatively, the earnings might be replicable, but they do not generate a sufficient return on investment to support the company's long-term viability. In both scenarios, the quality of earnings is low.

Note that high-quality reporting can still exist even if the economic reality it represents is not of high quality. In other words, despite the less favorable economic situation, financial reporting can still be of high quality if it accurately and clearly conveys this reality, offering decision-useful information to users.

Within GAAP, but Biased Choices

The next level down in the spectrum marked as “Within GAAP, but biased choices” refers to situations where financial reports comply with GAAP but include biased choices that do not faithfully represent the economic substance of the reported information. Biased choices can affect not only the reported amounts but also how information is presented.

Bias in financial reporting, like any other deficiencies, hampers an investor’s ability to accurately assess a company’s past performance, forecast future performance, and appropriately value the company. Some of the biased choices include:

- **Aggressive Choices:** These are decisions that inflate a company’s reported performance and financial position for the period under review. This can involve increasing reported revenues, earnings, or operating cash flow, reducing expenses, or minimizing reported debt levels on the balance sheet. While aggressive choices can enhance reported performance in the short term, they often lead to a deterioration in reported performance and financial position in subsequent periods.
- **Conservative Choices:** These decisions deflate a company’s performance and financial position in the reporting period. This might include lowering reported revenues, earnings, or operating cash flow, increasing expenses, or recording higher levels of debt on the balance sheet. Conservative choices can result in improved reported performance and financial position in future periods.
- **Earnings Smoothing:** This bias involves understating earnings volatility. Companies may make conservative choices to underestimate earnings during strong performance periods, creating hidden reserves that allow for aggressive choices when performance is weaker.

Within GAAP, but “Earnings Management”

The next level, "Within GAAP, but 'earnings management'" in the spectrum, involves earnings management, which refers to intentional choices that result in biased financial reports. This involves deliberate actions to manipulate reported earnings and how they are perceived by stakeholders.

The primary difference between earnings management and biased choices is the intent behind the actions. While biased choices may lead to unintentional misrepresentation, earnings management is characterized by intentional efforts to manipulate financial outcomes.

Earnings management can represent itself in through real or accounting choices. In the real actions companies may take specific actions to influence earnings, such as postponing research and development (R&D) expenses to the next reporting period, thereby increasing current period earnings.

On the other hand, in accounting decisions, companies can also manage earnings through accounting decisions. This includes adjusting estimates for product returns, bad debt expense, or asset impairment to create higher reported earnings.

Generally, whether through real actions or accounting decisions, the goal of earnings management is to influence the reported financial performance in a way that may not accurately reflect the company's true economic condition.

Due to the difficulty in determining intent, earnings management is included under the biased choices.

Non-Compliant Accounting

The "Non-Compliant Accounting" level of the spectrum represents deviations from GAAP, which generally indicate low-quality financial reporting. In such cases, assessing earnings quality becomes challenging or even impossible due to the lack of comparability with previous periods or other entities.

For example, improper accounting displayed itself in 2007, when New Century Financial issued

large amounts of subprime mortgages but reserved only minimal amounts for potential loan repurchase losses, consequently leading to its filing for bankruptcy.

Fictitious Transactions

At the bottom of the quality spectrum, fabricated reports depict fictitious events to mislead investors or conceal fraudulent asset misappropriation. For example, in 2004, Parmalat, an Italian milk processing conglomerate, reported fictitious bank balances to the tune of \$4.5 billion, which lead to arrests of chief executive offices and other executives, among other consequences.

Non-GAAP Reporting

Although companies can make choices within GAAP to present a desired economic picture, non-GAAP reporting adds an additional layer of management discretion. Non-GAAP reporting includes financial metrics that do not comply with generally accepted accounting principles like US GAAP or IFRS. These metrics can be both financial and operational:

- **Non-GAAP Financial Metrics:** These directly relate to the financial statements. A common example is "non-GAAP earnings," where companies adjust standard-compliant earnings to exclude items required by accounting standards or to include items not permitted by those standards.
- **Non-GAAP Operating Metrics:** These do not directly relate to financial statements and are typically industry-specific, such as subscriber numbers, active users, and occupancy rates.

Non-GAAP financial reporting has become increasingly prevalent, posing challenges for analysts. One significant challenge is that non-GAAP reporting reduces comparability across financial statements. Companies' adjustments to create non-GAAP earnings are generally ad hoc and vary widely. Analysts must carefully evaluate which specific adjustments should be considered in their analyses and forecasts.

Another challenge is the variation in terminology. Non-GAAP earnings may be referred to as underlying earnings, adjusted earnings, recurring earnings, core earnings, or similar terms. Companies might emphasize non-GAAP measures to divert attention from less favorable GAAP results, which is an example of aggressive presentation.

Regulatory Requirements for Non-GAAP Measures

Since 2003, if a company uses a non-GAAP financial measure in an SEC filing, it must display the most directly comparable GAAP measure with equal prominence and provide a reconciliation between the non-GAAP and GAAP measures. This ensures that non-GAAP financial measures are not given undue prominence.

Similarly, the IFRS Practice Statement "Management Commentary," issued in December 2010, requires disclosures when non-IFRS measures are included in financial reports. Companies must disclose when financial statement information has been adjusted for inclusion in management commentary. They must define and explain non-IFRS measures, including their relevance, and reconcile these measures to those presented in the financial statements.

The European Securities and Markets Authority (ESMA) published guidelines in October 2015 on Alternative Performance Measures (APMs). These guidelines cover the definition of APMs, reconciliation to GAAP, explanation of metrics' relevance, and consistency over time.

Interplay of Reporting Quality and Earnings Quality

Poor reporting quality often accompanies poor earnings quality. For example, aggressive accounting choices might be used to mask poor performance. However, it is also possible for poor reporting quality to coexist with high-quality earnings. A company performing well might still produce low-quality reports due to inadequate internal systems or deliberate, conservative accounting choices to manage external perceptions or future financial trajectories.

For example, a company might adopt conservative accounting to avoid political scrutiny or defer profit recognition to future periods, creating hidden reserves. These choices can make future results look more favorable by accelerating losses in earlier periods.

While unbiased financial reporting is ideal, some investors may prefer conservative reporting over aggressive reporting, as positive surprises are generally easier to handle than negative ones. Nevertheless, any form of biased reporting, whether conservative or aggressive, impairs the ability of users to accurately assess a company's performance.

In summary, the quality spectrum suggests that poor underlying economic conditions are often the main driver of poor reporting quality. However, a certain level of reporting quality is necessary to evaluate earnings quality effectively. As one moves down the quality spectrum, the distinction between reporting quality and earnings quality becomes less clear.

Question 1

Which of the following statements is the *most* accurate?

- A. Conservative accounting choices may lead to upward biases in current-period financial reports.
- B. Aggressive accounting choices may lead to downward biases in current-period financial reports.
- C. Conservative accounting choices may lead to downward biases in current-period financial reports.

Solution

The correct answer is C.

Conservative accounting choices may lead to downward biases in current-period financial reports. This results from conservative accounting choices decreasing a company's reported performance and financial position in the current period.

A is incorrect because conservative accounting choices lead to downward biases and not upward biases in current-period financial reports.

B is incorrect because aggressive accounting choices lead to upward biases and not downward biases in current-period financial reports.

Question 2

Concerning conservatism and aggressiveness, what are the preferences of managers, investors, and regulators?

- A. Managers prefer aggressiveness, investors prefer conservatism, and regulators prefer neutrality.
- B. Managers prefer aggressiveness, investors prefer conservatism, and

- regulators prefer conservatism.
- C. Managers prefer conservatism, investors prefer aggressiveness, and regulators prefer aggressiveness.

Solution

The correct answer is A.

Managers prefer aggressiveness since compensation is mainly tied to the company's financial performance. Investors prefer conservatism since they prefer good surprises over bad surprises. Regulators prefer neutrality because they want the financial results to reflect the company's actual position.

LOS 10c: explain the difference between conservative and aggressive accounting

Aggressive vs. Conservative Accounting

Companies have a certain level of discretion concerning the methods they use to evaluate and report their financial performance. Investors are often concerned with whether the accounting method is more aggressive or conservative, as this will affect their ability to determine a company's actual value.

Recall that aggressive accounting tends to employ more creative accounting techniques, resulting in overstated financial performance. Using these aggressive accounting choices in a company's current reporting period can decrease the company's reported performance and financial position in later periods, creating a sustainability issue.

On the other hand, conservative accounting uses methods that are more likely to understate financial performance and, as a result, do not usually create a sustainability issue. This arises from conservative accounting techniques decreasing a company's reported performance and financial position in the current period. However, it is imperative to note that if a company uses conservative accounting techniques, the reported performance and financial position may increase later.

It is commonly assumed that financial reports are often biased upward, but this is not always true. While accounting standards ideally aim for unbiased financial reporting, some standards specifically require conservative treatment of transactions or events. Additionally, managers may opt for a conservative approach when applying these standards. Analysts should consider the potential for conservative choices and their implications.

Conservatism in Accounting Standards

The Conceptual Framework advocates for neutrality in financial reporting, stating, "A neutral depiction is without bias in the selection or presentation of financial information." Neutrality, in this case, implies no upward or downward bias and is considered a desirable characteristic of

financial reporting. However, conservatism conflicts with neutrality because it introduces bias in measuring assets, liabilities, and ultimately, earnings.

Despite efforts to promote neutrality, many accounting standards still incorporate conservative principles. These standards can vary significantly across jurisdictions, and analysts must be aware of the implications for financial reports.

A good example of conservatism can be illustrated using the treatment of impairment of long-lived assets by IFRS and US GAAP.

Recall that under IFRS, an impairment charge is recorded if the "recoverable amount" (the higher of fair value less costs to sell and value in use) is less than the carrying amount. On the other hand, under US GAAP, an impairment charge is recorded only if the sum of the undiscounted future cash flows expected from the asset is less than its carrying amount. If this condition is met, the asset is written down to its fair value.

Consequently, IFRS might appear more conservative than US GAAP, as impairment losses are typically recognized sooner under IFRS. However, this intuition may not hold. For instance, if both IFRS and US GAAP standards recognize an impairment, and the asset's value in use exceeds its fair value, the impairment loss under US GAAP may be greater. Additionally, IFRS allows for the recovery of impairment losses if the recoverable amount increases in subsequent periods, whereas US GAAP does not permit the reversal of impairment losses.

Other examples of conservatism in accounting standards include:

- **Research Costs.** Both US GAAP and IFRS require immediate expensing of research costs due to the uncertainty of future benefits.
- **Litigation Losses.** Both US GAAP and IFRS standards require recognizing expenses when it becomes probable that a cost will be incurred, even if legal liability may arise in the future.
- **Insurance Recoverable.** Companies generally cannot recognize a receivable from an insurance claim until the insurer acknowledges the claim's validity.

Benefits of Conservatism

Watts (2003) identifies several potential benefits of conservatism:

1. **Protection for Less Informed Parties.** Conservatism can protect contracting parties with less information and greater risk. For example, lenders might benefit from conservative accounting as it reduces the risk of overstated assets and earnings.
2. **Litigation Risk Reduction.** Conservative accounting reduces the likelihood of litigation and associated costs because companies are rarely sued for understating good news or overstating bad news.
3. **Protection for Regulators and Politicians.** Conservatism can shield regulators and politicians from criticism if companies overstate earnings or assets.
4. **Tax Benefits.** In jurisdictions where financial and tax reporting rules are linked, companies can reduce their tax payments by adopting conservative accounting policies.

As a parting shot, while neutrality is an ideal characteristic of financial reporting, conservatism often introduces a downward bias. Analysts must account for this when evaluating financial statements to ensure a true understanding of a company's financial health.

Bias in the Application of Accounting Standards

Applying accounting standards often involves significant judgment, regardless of whether the standard itself is neutral. Characterizing the application as conservative or aggressive is largely a matter of intent; as such, it is important to analyze disclosures, facts, and circumstances that can help accurately infer this intent.

Management may manipulate earnings by sacrificing short-term profitability for higher future profits. One example of this is the "big bath" restructuring charge. Both US GAAP and IFRS allow for the accrual of future costs associated with restructurings, often presented along with asset impairments. However, companies sometimes use these provisions to estimate large losses in the current period to make future performance appear better.

In summary, some of the biases in applying accounting standards are big bath and cookie jar reserve accounting:

- **Big Bath Accounting.** Companies might inflate restructuring charges and asset impairments to create a significant loss in one period, allowing for improved results in subsequent periods. This practice gained attention in the late 1990s, leading the SEC to issue rules limiting when costs can be categorized as part of a "non-recurring" restructuring event and enhancing transparency around these charges.
- **Cookie Jar Reserve Accounting.** This involves overstating allowances for future non-payments of loans to smooth income over time. In 2003, the SEC issued interpretive guidance requiring a separate section in the management discussion and analysis (MD&A) titled "Critical Accounting Estimates." This section should disclose the nature and uncertainty of material subjective estimates and judgments, in addition to required disclosures in the financial statement notes.

Question 1

Which of the following statements is the *most* accurate?

- A. Conservative accounting choices may lead to upward biases in current-period financial reports.
- B. Aggressive accounting choices may lead to downward biases in current-period financial reports.
- C. Conservative accounting choices may lead to downward biases in current-period financial reports.

Solution

The correct answer is C.

Conservative accounting choices may lead to downward biases in current-period financial reports. This results from conservative accounting choices decreasing a company's reported performance and financial position in the current period.

A is incorrect because conservative accounting choices lead to downward biases and not upward biases in current-period financial reports.

B is incorrect because aggressive accounting choices lead to upward biases and not downward biases in current-period financial reports.

Question 2

Concerning conservatism and aggressiveness, what are the preferences of managers, investors, and regulators?

- A. Managers prefer aggressiveness, investors prefer conservatism, and regulators prefer neutrality.
- B. Managers prefer aggressiveness, investors prefer conservatism, and

- regulators prefer conservatism.
- C. Managers prefer conservatism, investors prefer aggressiveness, and regulators prefer aggressiveness.

Solution

The correct answer is A.

Managers prefer aggressiveness since compensation is mainly tied to the company's financial performance. Investors prefer conservatism since they prefer good surprises over bad surprises. Regulators prefer neutrality because they want the financial results to reflect the company's actual position.

LOS 10d: describe motivations that might cause management to issue financial reports that are not high quality and conditions that are conducive to issuing low-quality, or even fraudulent, financial reports

When evaluating the quality of financial reports, it's crucial to consider whether company managers might be motivated to issue reports that are not of high quality. If such motivations exist, analysts should assess whether the reporting environment supports or disciplines potential misreporting, taking into account mechanisms like the regulatory regime.

Motivations for Might Cause Management to Issue Financial Reports that are not High quality

Managers may be driven to issue low-quality financial reports due to the following reasons:

- **Meeting Market Expectations:** Managers often have incentives to meet or exceed market expectations, such as analysts' forecasts, even without poor performance. Achieving these benchmarks can temporarily boost stock prices and enhance management compensation linked to stock price or reported earnings.
- **Career Concerns and Incentive Compensation:** Managers might be motivated by concerns about their future career opportunities or receiving bonuses tied to earnings targets. This can lead to accounting choices aimed at increasing earnings, such as accelerating revenue recognition or delaying expenses. Conversely, in strong performance periods, managers might delay revenues or accelerate expenses to "bank" earnings for future periods.
- **Avoiding Debt Covenant Violations:** Highly leveraged and unprofitable companies might inflate earnings to avoid violating debt covenants. However, overall, this motivation is less significant compared to others.

Conducive Conditions for Issuing Low-quality Financial Reports

Low-quality financial reporting can result from management choices or the financial reporting standards of a jurisdiction. Ultimately, the decision to issue low-quality or fraudulent reports lies with individuals. Understanding why individuals make such choices isn't always straightforward.

Three conditions typically exist when low-quality financial reports are issued: opportunity, pressure or motivation, and rationalization, known as the fraud triangle.

- **Opportunity.** This can arise from internal conditions like poor internal controls, an ineffective board, or external conditions like accounting standards that allow divergent choices or have minimal consequences for inappropriate choices.
- **Pressure or Motivation.** This can come from personal incentives like bonuses or corporate needs like future financing concerns.
- **Rationalization.** It plays a crucial role in decision-making because if a decision-maker feels uneasy about a choice, they need to find a way to justify it to themselves. For instance, while aware of his wrongdoing, former Enron CFO Andrew Fastow followed procedures to justify his decisions by seeking management and board approval, legal and accounting opinions, and including appropriate disclosures. His actions, driven by incentives and corporate culture focused on short-term earnings rather than long-term value, ultimately led to legal consequences.

Question #1

Which of the following is *least likely* a motivating factor behind managers' decision to deliberately issue low-quality financial reports?

- A. The desire to get higher compensation.
- B. The desire to avoid violating debt covenants.
- C. The desire to report poor financial performance.

Solution

The correct answer is C.

Managers will issue financial reports of poor quality, i.e., increase revenues or reduce the cost of sales, to hide poor financial performance.

A and B are incorrect. They motivate managers to issue low-quality financial reports.

Question #2

A possible motivation for a manager to issue low-quality financial reports could be:

- A. The manager's poor administrative skills.
- B. The manager's compensation is tied to stock price performance.
- C. The manager's willingness to increase the market share of products significantly.

Solution

The correct answer is B.

Tying a manager's cash compensation to the company's earnings will motivate them to issue low-quality financial reports.

LOS 10 e: describe mechanisms that discipline financial reporting quality and the potential limitations of those mechanisms

Mechanisms That Discipline Financial Reporting Quality

Market forces can discipline poor financial reporting quality. Companies and nations compete for capital, and the cost of capital is influenced by perceived risk, including the risk that financial statements may mislead investors. Therefore, to minimize long-term capital costs, a company should aim to provide high-quality financial reports, assuming no conflicting economic incentives are present.

Mechanisms that discipline financial reporting quality include market regulatory authorities, auditors, and private contracts.

Market Regulatory Authorities

While companies aiming to minimize the cost of capital should prioritize high-quality financial reporting, conflicting incentives often exist. Thus, national regulations and the regulators who establish and enforce these rules significantly ensure financial reporting quality.

International Organization of Securities Commissions (IOSCO) is recognized as the "global standard setter for the securities sector." It establishes objectives and principles to guide securities and capital market regulation but does not set specific standards. IOSCO has over 120 securities regulators and 80 other securities market participants, including stock exchanges.

Many of the world's securities regulators are members of the International Organization of Securities Commissions (IOSCO). Such members include The European Securities and Markets Authority (ESMA) and the Securities and Exchange Commission (SEC).

ESMA is an independent EU authority aiming to protect investors and ensure stable financial markets in the EU. It coordinates financial reporting enforcement through a forum of European enforcers. National bodies, like the UK's Financial Conduct Authority (FCA), handle direct supervision.

The SEC oversees about 9,100 US public companies, reviewing their disclosures at least once every three years.

Other regulatory bodies include the Financial Services Agency in Japan, the China Securities Regulatory Commission, and Comisión Nacional de Valores in Argentina.

Key Features of Regulatory Regimes

Market regulatory authorities play a crucial role in promoting high-quality financial reporting through various mechanisms, which include:

1. **Registration Requirements:** Publicly traded companies must register securities before offering them for sale, providing current financial statements and relevant information about risks and prospects.
2. **Disclosure Requirements:** Companies must make periodic reports public, including financial reports and management comments. Standard-setting bodies like IASB and FASB establish standards that regulatory authorities enforce.
3. **Auditing Requirements:** Financial statements must include an audit opinion verifying conformity to relevant standards. Some regulators, like the SEC, require an additional audit opinion on internal controls over financial reporting.
4. **Management Commentaries:** Regulations require financial reports to include management statements reviewing the business and describing principal risks and uncertainties.
5. **Responsibility Statements:** Responsible individuals must acknowledge responsibility and attest to the correctness of financial reports. Some regulators require formal certifications with legal penalties for false certifications.
6. **Regulatory Review of Filings:** Regulators review initial registrations and a sample of subsequent financial reports to ensure compliance with rules.
7. **Enforcement Mechanisms:** Regulators can assess fines, suspend or bar market participants, and bring criminal prosecutions. Public announcements of disciplinary actions also serve as enforcement.

Auditors

Regulatory authorities typically require publicly traded companies' financial statements to be audited by an independent auditor. Private companies also often seek audit opinions for their financial statements, either voluntarily or due to requirements from external parties such as debt or equity providers.

Audit opinions provide assurance to financial statement users that the information complies with relevant accounting standards and fairly represents the company's performance. There are four types of audit opinions:

- **Unqualified Opinion (Clean Opinion):** This is the most favorable type of audit opinion. It indicates that the financial statements present a true and fair view of the company's financial position and performance in accordance with the applicable financial reporting framework (e.g., GAAP, IFRS).
- **Qualified Opinion:** A qualified opinion is issued when the auditor encounters a specific issue that does not pervasively affect the financial statements. This issue may be a material misstatement or a scope limitation.
- **Adverse Opinion:** An adverse opinion is given when the auditor concludes that the financial statements do not present a true and fair view due to material and pervasive misstatements. This type of opinion indicates that the financial statements are not reliable and should not be relied upon for decision-making purposes.

Inherent Limitations of Audit Opinions

1. **Reliance on Company-Provided Information:** Auditors review financial information and documents prepared by the company they are auditing. This means that the data they examine is initially compiled and presented by the company's management. If a company intentionally provides misleading or false information, the audit may not detect these misstatements because the audit is based on what the company presents.
2. **Sampling Basis:** Audits typically involve examining a sample of transactions and balances rather than reviewing every single transaction. This sampling approach is used to make the audit process efficient and cost-effective, but it means that not all errors or

irregularities may be identified.

3. **Expectations Gap:** There is often a misunderstanding between what the public expects auditors to do and what audits are designed to accomplish. Auditors aim to provide reasonable assurance that the financial statements are free of material misstatement and fairly presented. However, they are not specifically tasked with detecting fraud.
4. **Fee Structures and Potential Conflicts of Interest:** The company being audited pays the auditors' fees, which could potentially influence the auditors' objectivity and independence. As such, auditors may be tempted to avoid conflict with the company to retain the business, especially if the audit firm also provides other consulting services to the company.

Private Contracting

Private contracts, such as loan agreements or investment contracts, play a significant role in maintaining high-quality financial reporting. Various parties involved in these contracts have a vested interest in monitoring the company's performance and ensuring the accuracy and reliability of its financial reports.

Loan Agreements

More specifically, loan agreements often include covenants, which are legally binding conditions that the borrowing company must meet. These covenants may require the company to maintain certain financial ratios, such as debt-to-equity or interest coverage ratios. By imposing these conditions, lenders can ensure that the company remains financially healthy and capable of repaying the loan.

Moreover, lenders monitor the company's financial reports to verify compliance with the covenants. Failure to comply with these covenants can result in penalties, such as increased interest rates, demands for early repayment, or even loan default. This creates a strong incentive for companies to produce accurate and high-quality financial reports to avoid breaching loan covenants.

Consequently, to avoid violating covenants, managers might feel pressured to manipulate

earnings. Such actions can mislead lenders, but stringent monitoring by lenders can help detect and discourage such practices.

Investment Contracts

Investment contracts may include clauses that allow investors to withdraw or recover their investment if certain financial conditions are met. These triggers might be based on specific financial metrics or performance indicators.

As such, investors closely monitor the company's financial statements to ensure that their investments are secure. If the company's performance deteriorates and triggers these provisions, investors can act to protect their interests.

To avoid triggering these provisions, managers might be tempted to manipulate financial results. Investors, aware of this risk, are likely to scrutinize financial reports more carefully and demand high-quality and transparent reporting.

In conclusion, since financial reports directly impact contractual outcomes, both investors and lenders have strong incentives to ensure these reports are accurate and reliable. Their monitoring efforts act as a check on the company's financial reporting practices, helping to maintain high standards and reduce the risk of misreporting.

Question #1

Which of the following mechanisms used to discipline financial reporting quality directly involves a company having its financial statements audited by an independent auditor?

- A. Auditors.
- B. Private contracts.
- C. Regulatory authorities.

Solution

The correct answer is A.

Auditors audit the financial statements of a company and produce audit reports.

Question #2

The primary role of an auditor is to:

- A. Detect fraud.
- B. Reveal misstatements.
- C. Assure that financial information is presented fairly.

Solution

The correct answer is C.

The goal of auditing a company's financial reports is to confirm that these reports make a fair representation of the company's economic reality. Since the auditing process is based on sampling, it doesn't necessarily discover fraud or misstatement.

LOS 10f: describe presentation choices, including non-GAAP measures, that could be used to influence an analyst's opinion

Numerous choices in applying accounting standards contribute to the extensive volume of accounting literature and textbooks. Understanding the choices companies make in financial reporting is crucial for evaluating the overall quality of the reports—both in terms of financial reporting quality and earnings quality.

Presentation choices reflecting financial reporting quality are often more visible to investors, whereas choices in calculating financial results (earnings quality) are more challenging to discern as they can be deeply embedded in the construction of reported outcomes.

The availability of accounting choices allows managers to influence the reporting of financial results. For instance, some choices are aggressive, while others are conservative choices. More specifically, a manager aiming to boost current performance and financial position might:

- Recognize revenue prematurely;
- Use non-recurring transactions to increase profits;
- Defer expenses to later periods;
- Measure and report assets at higher values
- Measure and report liabilities at lower values.

Conversely, a manager aiming to improve performance and financial position in a future period might:

- Defer current income to a later period (saving income for a "rainy day");
- Recognize future expenses in the current period, setting the stage for better future performance.

Note that in addition to choices within GAAP, companies may also prepare fraudulent reports, such as including non-existent revenue or assets.

Presentation Choices That Influence Analyst Opinions

During the technology boom of the 1990s and the early 2000s internet bubble, many popular companies couldn't generate enough current earnings to justify their stock prices using traditional price-to-earnings ratio (P/E) valuation methods. Investors rationalized this by suggesting that conventional focus on profits and valuation methods no longer applied to these companies. This led to the emergence of new metrics for assessing operating performance, such as "eyeballs" captured by websites or the "stickiness" of their pages for user visits. Various versions of "pro forma earnings" or "non-GAAP earnings measures" became prevalent during this period.

Evolution of Proforma Reporting

While technology companies popularized pro forma reporting, they were not the first to use it. In the early 1990s, downsizing large companies often led to massive restructuring charges that obscured operating performance. For instance, IBM reported significant restructuring charges in 1991, 1992, and 1993 as it adapted to a market favoring personal computers over mainframes. Companies sanitized earnings releases by excluding these restructuring charges in pro forma financial performance measures to counter the perception of floundering operations.

Accounting principles for business combinations also boosted pro forma earnings' popularity. Before 2001, acquisitions often resulted in goodwill amortization charges, weakening subsequent earnings reports. The pooling of interests and purchase methods were two accounting methods for recording acquisitions. Pooling of interest was difficult to achieve but desirable because it did not result in goodwill amortization charges. During the technology boom, acquisitions were common, and many were reported as purchases, leading to goodwill amortization and dragging down earnings. Companies responded by presenting earnings adjusted to exclude amortization of intangible assets and goodwill.

EBITDA and Adjusted EBITDA

Investors sought to compare companies on a consistent basis, leading to the popularity of

earnings before interest, taxes, depreciation, and amortization (EBITDA) as a performance measure. EBITDA is seen as eliminating noisy reporting signals caused by different accounting methods among companies. Companies might construct their own version of EBITDA, referred to as “adjusted EBITDA,” by excluding additional items from net income, such as:

- Rental payments for operating leases (EBITDAR)
- Equity-based compensation, justified as a non-cash expense
- Acquisition-related charges
- Impairment charges for goodwill or other intangible assets
- Impairment charges for long-lived assets
- Litigation costs
- Loss/gain on debt extinguishments

Loan covenants also drive the use of non-GAAP earnings measures. Lenders may require performance criteria based on GAAP net income, adjusted to suit the lender’s needs. Companies might use this measure as their preferred non-GAAP metric in earnings releases and management commentaries.

The SEC requires that if a company uses a non-GAAP financial measure in an SEC filing, it must display the most comparable GAAP measure with equal prominence and provide a reconciliation between the two. Management must explain why the non-GAAP financial measure is useful for understanding the company’s financial condition and operations and disclose any additional purposes for which it is used. Similarly, IFRS requires definitions and explanations of non-IFRS measures in financial reports, including why they are relevant to users and reconciliations with IFRS measures.

The SEC’s definition of non-GAAP financial measures captures all measures that depict:

- A performance measure differing from that presented in financial statements according to GAAP

- A liquidity measure differing from cash flow or cash flow from operations computed in accordance with GAAP

The SEC prohibits excluding cash-settled charges or liabilities from non-GAAP liquidity measures, other than EBIT and EBITDA. It also prohibits calculating a non-GAAP performance measure to eliminate or smooth items labeled as non-recurring, infrequent, or unusual when such items are likely to recur within two years before or after the reporting date.

Question 1

Which of the following statements is the *least* accurate?

- A. Companies may construct and report “adjusted EBITDA” by including additional items with net income.
- B. In SEC filings, a comparable GAAP measure must be displayed with equal prominence beside non-GAAP financial measures.
- C. The SEC prohibits a company from excluding charges or liabilities requiring cash settlement from non-GAAP liquidity measures, other than EBIT and EBITDA.

Solution

The correct answer is A.

Companies may construct and report “adjusted EBITDA” by excluding and not including additional items from net income.

Options B and C are accurate statements.

Question 2

If a company uses a non-GAAP measure in its financial reports, it must disclose:

- A. The reason for using that measure.
- B. A reconciliation between that measure and the closest GAAP measure.
- C. The reason for using that measure and reconciliation between that measure and the closest GAAP measure.

Solution

The correct answer is C.

To use a non-GAAP measure, a company must disclose the reason for using the measure so that investors can judge its viability. In addition, the company must reconcile the measure to the closest measure to guide an investor to the closest alternative GAAP measure. Further, the company must clarify the difference between the two measures.

LOS 10g: describe accounting methods (choices and estimates) that could be used to manage earnings, cash flow, and balance sheet items

Accounting Choices and Estimates

Management's accounting policies and decisions don't always involve intricate accounting standards. For example, even straightforward choices, such as the shipping terms for delivered goods, can significantly impact revenue timing. For instance, if a company ships a certain value of goods to a customer on the last day of the first quarter under "free on board (FOB) shipping point" terms, the customer assumes ownership and risk when the goods leave the seller's dock. Assuming there are no issues with the collectability or return likelihood, the seller can recognize the revenue and profit in the first quarter.

Conversely, if the shipping terms are changed to "FOB destination," the customer assumes ownership and risk when the goods reach their destination. This change means the seller cannot recognize the sale and profit until the goods arrive, which would be in the next quarter. As such, such a change in shipping terms can affect whether revenue and profits are reported in the current period or deferred to the next. These terms can also influence managerial behavior.

To meet targets, managers might prematurely ship products under FOB shipping point terms to maximize reported revenue. Alternatively, if orders exceed expectations, management might prefer not to surpass analysts' estimates by too much.

Moreover, to moderate investor expectations, management might delay revenue recognition by using FOB destination terms, thereby shifting the recognition to the next quarter. If customers demand FOB shipping point terms, the company might delay shipment until after the quarter ends.

The above example highlights a challenge for investors, where companies might use accounting to manipulate reported earnings.

Effect of Accounting Choices and Estimates on Earnings and Balance Sheets

Inventory Cost Flows

Assumptions about inventory cost flows illustrate how accounting choices can impact financial reporting. Companies might assume that their inventory items are sold on a first-in, first-out (FIFO) basis, meaning the remaining inventory reflects the most recent costs. Alternatively, they may use a weighted-average cost basis. The choice of an inventory costing method affects profit and is a policy decision that companies cannot change arbitrarily. This choice influences both profitability and the balance sheet.

In periods of price changes, FIFO provides a more current picture of ending inventory value, as the most recent purchases remain in inventory, making the balance sheet more relevant. Under the weighted-average cost method, the balance sheet shows a blend of old and new costs. During inflation, inventory value may be understated under the weighted-average method, as it does not reflect replacement costs. However, this method ensures that the cost of sales shows more current costs, making the income statement more relevant than under FIFO.

Trade-offs exist, and high-quality financial reporting should provide enough information for users to assess the impact of these choices.

Accrual Accounting and Estimates

Estimates are prevalent in financial reporting due to accrual accounting, which aims to reflect all economic events in a period, unlike cash basis accounting that only shows cash transactions. While cash basis accounting is more certain, it hides much information. Accrual accounting, with its estimates of future events, provides a fuller picture of a period's activities but also poses temptations for managers to manage numbers rather than the business.

For instance, if managers realize they will miss analysts' estimates and their bonuses depend on meeting earnings targets, they might offer special payment terms or discounts to induce customers to take delivery of products early. They might even ship goods without orders, hoping customers will keep them or return them in the next period. This can allow revenue recognition under FOB shipping point terms. Managers might also revise their estimate of uncollectible accounts to improve earnings. By using a lower non-collection rate, they reduce the allowance for uncollectible accounts and the period's expense. Justifying the change can be easy, but its accuracy is often unverifiable until later, making earnings manipulation possible.

Deferred-Tax Assets

Deferred-tax assets arise from differences between accounting and tax rules, such as net operating losses. Companies record deferred-tax assets expecting future profits to offset current losses and reduce future tax liabilities. Standards require reducing deferred-tax assets by a valuation allowance if it's unlikely the company will generate enough profit to use all tax benefits.

Management's outlook on the future drives the value of these assets and can be influenced by other factors, such as the need to comply with debt covenants, leading to a potentially optimistic view to keep the valuation allowance low.

Depreciation Methods

The choice of depreciation method for long-lived assets also affects reported results. Managers can choose to depreciate assets:

- on a straight-line basis, with equal annual expense;
- using an accelerated method, with higher early-life expenses; or
- using an activity-based method, allocating expenses based on use or production.

Depreciation expense also depends on estimates of salvage value, with a zero salvage value increasing expense under any method compared to a non-zero value.

The company's managers can justify any of these methods as each one may accurately reflect the manner in which the equipment will be utilized over its anticipated economic life. This assessment, however, is inherently subjective. The selection of depreciation methods and estimated useful lives can significantly impact reported income. These decisions are not definitively validated or invalidated until much later, yet managers are required to estimate their effects in the present.

Capitalization Practices

Capitalization practices offer another example of how choices affect financial statements. Management must decide if a payment benefits only the current period, making it an expense, or future periods, leading to capitalization as an asset. This judgment, predicting future use, significantly impacts earnings. Every amount capitalized as an asset is not recognized as an expense in the reporting period, affecting both the balance sheet and income statement.

Acquisition Allocations

In acquisitions, management must allocate the purchase price to various acquired assets based on their fair values, which might not be objectively verifiable. Lower estimates for depreciable assets can reduce future depreciation expense and increase the amount classified as goodwill, which is not depreciated. However, goodwill must be tested for impairment annually, with write-downs required if the fair value is unrecoverable. Projections used in this testing can be biased to avoid impairments.

Understanding these accounting choices and estimates is crucial for evaluating financial reporting and earnings quality. Choices exist in both presentation and calculation, and managers can influence financial results to meet expectations. High-quality financial reporting should provide transparent information for users to assess the impact of these choices.

Accounting Choices Affecting Cash Flow Statement

Recall that the cash flow statement is divided into three sections: operating, investing, and financing. The operating section shows cash generated or used by operations, the investing section shows cash used for investments or generated from their disposal, and the financing section shows cash flows related to financing activities.

The operating section is often scrutinized by investors as it is seen as a "reality check" on reported earnings since earnings generated solely through accrual accounting but unsupported by actual cash flows might indicate earnings manipulation. While some believe cash from operations is less susceptible to manipulation, it can still be managed to some extent.

Also recall that, the operating section can be presented using either the direct or indirect

method. The direct method reports major classes of gross cash receipts and payments, leading to the net cash flow from operating activities. On the other hand, indirect method, reconciles net income to cash provided by operations by adjusting for non-cash items and changes in working capital accounts.

Despite its encouragement, the direct method is rarely used, and thus many companies opt to use indirect method.

Managers can improve the appearance of cash flow from operations without actually improving it. For example, delaying payment to creditors by USD100 million can artificially increase cash flow from operations by the same amount. Investors should examine changes in working capital to detect such manipulations. Comparing a company's cash generation performance to industry norms or competitors can also highlight discrepancies.

Examining the Composition of Operations

Investors should scrutinize the composition of the operations section of the cash flow statement. If not closely examined, manipulations may go unnoticed. By studying changes in working capital, unusual patterns may be revealed, indicating potential manipulation of cash provided by operations.

Comparing Cash Generation with Industry Standards

Investors should compare a company's cash generation performance to industry standards or similar competitors. Cash generation performance can be evaluated in several ways:

1. **Cash Generated by Operations vs. Net Income:** Cash generated by operations that exceed net income indicates higher quality earnings. Conversely, if net income consistently exceeds cash generated by operations, it might suggest the use of aggressive accounting methods to inflate net income rather than reflect actual financial performance.
2. **Cash Generated by Operations vs. Financial Obligations:** Comparing cash generated by operations to debt service, capital expenditures, and dividends can

highlight discrepancies. Significant differences between a company's cash generation and its benchmarks warrant further investigation and a careful examination of changes in working capital accounts.

Managing Working Capital Accounts

Managers may manipulate working capital accounts to present a more favorable cash flow picture. This can be done by delaying payments to creditors or altering the timing of revenue recognition. However, there are other methods as well.

Misclassification of Cash Flows

Managers may misclassify operating cash uses into the investing or financing sections to enhance the appearance of cash generated by operating activities. Another area of flexibility is interest capitalization, which creates differences between total interest payments and total interest costs.

Example: Interest Capitalization

Assume a company incurs a total interest cost of USD50,000, comprising USD5,000 in discount amortization and USD45,000 in interest payments. If two-thirds of this amount (USD33,333) is expensed and one-third (USD16,667) is capitalized, the company might allocate USD30,000 (two-thirds of USD45,000) to operating outflows and USD15,000 (one-third of USD45,000) to investing outflows. Alternatively, the company could offset the entire USD5,000 of non-cash discount amortization against the USD33,333 treated as an expense, resulting in an operating outflow as low as USD28,333 or as high as USD33,333, depending on how the non-cash discount amortization is allocated. This flexibility in allocation can lead to a distorted picture of cash flows.

Flexibility in IAS 7

IAS 7, Statement of Cash Flows, provides flexibility in the classification of certain items. Paragraphs 33 and 34 of IAS 7 allow interest paid and interest and dividends received to be

classified as operating, investing, or financing cash flows. This flexibility allows managers to present the most favorable picture of operating performance:

- **Paragraph 33:** Interest paid and interest and dividends received are typically classified as operating cash flows for financial institutions. For other entities, these may be classified as operating, financing, or investing cash flows.
- **Paragraph 34:** Dividends paid may be classified as financing cash flows or as a component of operating cash flows, depending on the intended presentation.

By allowing these choices, IAS 7 allows managers to select the presentation that best enhances the appearance of operating performance.

Accounting Choices Affecting Financial Reporting

The following are some of the pertinent areas where choices made can affect financial reports

Revenue Recognition

- **Timing of Revenue Recognition:** Is revenue recognized upon shipment or delivery of goods?
- **Channel Stuffing:** Is the company overloading distribution channels with more products than they can sell, possibly through unusual discounts or price increase threats? Are accounts receivable unusually high, indicating potential channel stuffing?
- **Sales Returns:** Are there unusual activities in the allowance for sales returns compared to historical data?
- **Days Sales Outstanding:** Are there collection issues that might indicate the shipment of unneeded or unwanted goods?
- **Bill-and-Hold Transactions:** Does the company engage in transactions where goods are purchased but retained by the seller? This can allow fictitious sales.
- **Rebates:** How significantly do rebate estimates affect net revenues, and are there any

unusual changes in rebate history?

- **Multiple Deliverables:** Does the company separate revenue arrangements into multiple deliverables, and are there reasonable explanations for how revenue is allocated?

Depreciation Policies for Long-Lived Assets

- **Asset Life Spans:** Do estimated life spans of assets make sense, or are they unusually short compared to industry standards?
- **Changes in Depreciable Lives:** Have there been changes in depreciable lives that positively affect current earnings?
- **Asset Write-Downs:** Do recent write-downs suggest a need to reconsider asset life policies?

Intangible Assets: Capitalization Policies

- **Capitalization Practices:** Does the company capitalize expenditures related to intangibles like software or R&D?
- **Comparison with Competitors:** How do the company's capitalization policies compare with those of its peers?
- **Amortization Policies:** Are the amortization policies reasonable?

Allowance for Doubtful Accounts/Loan Loss Reserves

- **Allowance Additions:** Are additions to allowances lower or higher than in the past?
- **Collection Experience:** Does the collection experience justify any changes in provisioning?
- **Industry Difficulties:** Is there a possibility that lowering the allowance is due to industry difficulties or meeting earnings expectations?

Inventory Cost Methods

- **Costing Methods:** Does the company use a fair costing method, given its environment? How do its methods compare with industry standards?
- **Obsolescence Reserves:** Does the company use reserves for obsolescence, and are there unusual fluctuations?
- **LIFO Liquidation:** If using LIFO, does LIFO liquidation occur through inventory reduction programs, potentially generating earnings without supporting cash flow?

Tax Asset Valuation Accounts

- **Valuation Allowance:** Are tax assets stated at a reasonable value, and does the allowance reflect realistic future operations and tax payments?
- **Management Commentary:** Are there contradictions between management commentary and the allowance level?
- **Changes in Valuation Account:** Look for changes in the tax asset valuation account that might indicate a need for an earnings boost.

Goodwill

- **Impairment Assessment:** Are goodwill balances assessed for impairment annually based on subjective estimates like future cash flows and discount rates?
- **Disclosures:** Do disclosures suggest that impairment tests were skewed to avoid charges?

Warranty Reserves

- **Reserve Additions:** Have additions to warranty reserves been reduced to meet earnings targets?

- **Actual Costs:** Do actual costs charged against reserves support or contradict warranty provisioning activities?
- **Product Quality:** Do costs indicate the quality of the products sold?

Related-Party Transactions

- **Management Benefit:** Do transactions disproportionately benefit management?
- **Control Over Destiny:** Does one company have control over another's destiny through supply contracts or other dealings?
- **Dealings with Non-Public Companies:** Are extensive dealings with non-public companies under management control, potentially absorbing losses to make the public company's performance look better?

By monitoring these areas, analysts can better assess the quality and integrity of financial reports.

Question 1

If a company's management desires to make the current period's financial position look more attractive, which of the following steps is it *most likely* to take?

- A. Capitalize a payment.
- B. Recognize a payment as an expense.
- C. Either capitalize or treat a payment as an expense, as it doesn't matter.

Solution

The correct answer is A.

Capitalizing a payment will reduce the current period's expenses, thereby improving the current period's financial position.

Question 2

In an inflationary market with low production, which of the policies below could managers follow to increase the reported cash from operations?

- A. Apply straight-line depreciation only.
- B. Use straight-line depreciation and apply the FIFO method.
- C. Apply the FIFO method only, with no regard to the depreciation method.

Solution

The correct answer is A.

Depreciation is a non-cash expense that does not affect the statement of cash flow. The cost accounting method is also a non-cash expense since the company pays cash for the actual prices at which the inventory has been bought. The cost of goods sold accounting method only affects the income statement and balance sheet.

LOS 10h: describe accounting warning signs and methods for detecting manipulation of information in financial reports

Management's choices to achieve desired financial results often leave discernible evidence akin to tracks in sand or snow. The warning signs of potential information manipulation in financial reports are directly tied to the fundamental methods of manipulation: biased revenue recognition and biased expense recognition. These biases can manifest in the timing or the location of recognition.

An example of time-related manipulation is expense capitalization, which decreases the expenses of the current period and distributes the cost over several upcoming periods. Location-related manipulations could be made by misallocating losses, i.e., deducting them from other comprehensive income or even directly from equity rather than net income.

Pay Attention to Revenue

Revenue is the largest figure on the income statement and is often manipulated or subject to fraud. Simply checking if revenue is higher or lower than the previous period is not enough. Several analytical procedures can help identify potential red flags:

- **Review Revenue Recognition Policies:** Check the accounting policies note for details on how the company recognizes revenue. Policies that allow for premature revenue recognition, such as recognizing revenue upon shipment or using bill-and-hold arrangements, warrant scrutiny.
- **Watch for Barter Transactions:** These can be difficult to value accurately.
- **Evaluate Rebate Programs:** These involve many estimates, including forecasted rebates, which can significantly impact revenue recognition.
- **Check Multiple-Deliverable Arrangements:** Ensure clarity on how and when revenue is recognized for each component delivered. Even if these practices do not violate accounting standards, they require significant judgment and should be closely

examined if other warning signs are present.

- **Compare Revenue Growth:** Evaluate the company's revenue growth against its competitors or industry peers. If the company's growth is out of line, investigate the reasons. It might indicate superior management or products, but revenue quality could be suspect, necessitating further analysis.
- **Compare Accounts Receivable to Revenue:** Over several years, check if receivables are increasing as a percentage of total revenue. This might indicate channel-stuffing or fictitious sales. Calculate the receivables turnover ratio for several years to spot unusual changes and seek explanations if needed. Moreover, compare the company's days sales outstanding (DSO) or receivables turnover with competitors or industry peers. Significant increases in DSO or decreases in turnover could suggest premature or fictitious revenues or insufficient allowances for doubtful accounts.
- **Examine Asset Turnover:** If a company's revenue generation is insufficient to justify its asset investments, particularly post-acquisition, it may indicate poor asset allocation. This could lead to accounting abuses. Calculate revenue productivity, which is revenues divided by total assets, indicates how well assets generate revenue. Declining asset turnover or lagging behind competitors might suggest future asset write-downs, especially in goodwill for acquisitive companies.

These steps help ensure that revenue figures are reliable and reflect true economic performance.

Pay Attention to Inventory Signals

While not every company has inventory as part of its asset base, those that do present the potential for accounting manipulation.

- **Examine Inventory Relationships:** Inventory is directly tied to revenue, so scrutinizing inventory involves similar steps as revenue analysis.
- **Compare Inventory Growth:** Evaluate inventory growth against competitors and industry benchmarks. Disproportionate inventory growth without corresponding sales

growth could indicate poor inventory management or potential obsolescence issues that haven't been marked down, leading to overstated profits.

- **Calculate Inventory Turnover Ratio:** This ratio, which is the cost of sales divided by the average ending inventory, can reveal obsolescence problems if it declines. A lower turnover ratio suggests that inventory might not be selling as quickly, potentially indicating unsellable stock.
- **Consider LIFO Inventory Costing:** Under US GAAP, if a company uses the Last-In, First-Out (LIFO) method in an inflationary environment, note whether older, lower-cost inventory has been used to boost current earnings, which can artificially inflate profits.

Pay Attention to Capitalization Policies and Deferred Costs

Improper capitalization can significantly misstate financial results. As such, analysts should:

- **Examine Capitalization Policies:** Review the company's accounting policy note to understand its capitalization policy for long-term assets, including interest costs and its treatment of deferred costs. Compare these policies with industry standards. If a company capitalizes on certain costs while others in the industry treat them as expenses, this discrepancy raises a red flag.
- **Cross-Check Metrics:** For a company that capitalizes costs unusually, compare its asset turnover and profitability margins with industry peers. While higher profitability might be expected, the reliability of the reported figures may be questionable.

Pay Attention to the Relationship between Cash Flow and Net Income

While net income influences stock prices, cash flow is essential for covering expenses. Management may manipulate either, but ultimately, net income must translate into cash for the company to remain sustainable. A discrepancy where net income exceeds cash provided by

operations could indicate that current expenses are being deferred through aggressive accrual accounting policies. Increasing earnings alongside declining cash from operations may be a warning of accounting issues.

As such, an analyst should create a time series comparing cash generated by operations to net income. If this ratio is consistently below 1.0 or shows a declining trend, it may suggest issues with the company's accrual accounts.

Other Potential Warning Signs

Several indicators may suggest the need for further analysis in assessing a company's financial health:

- **Depreciation Methods and Useful Lives:** The selection of depreciation methods and the estimation of useful lives can significantly impact profitability. Compare a company's policies with those of its peers to see if they are particularly lenient, affecting earnings. Also, compare the depreciable lives used by a company with those used by its competitors.
- **Fourth-Quarter Surprises:** Be wary if a company routinely disappoints with poor earnings or exceeds expectations in the fourth quarter, especially when no seasonality exists in the business. This pattern may indicate over- or under-reporting profits in the first three quarters.
- **Related-Party Transactions:** Related-party transactions often occur when a company's founders are still actively managing it, with their wealth closely tied to the company's fortunes. These individuals might have a biased view of the company's performance and may conduct business in ways that might not be detected, such as purchasing unsellable inventory to avoid markdowns.
- **Non-Operating Income or One-Time Sales Included in Revenue:** To disguise weakening revenue growth or enhance revenue figures, a company might classify non-operating income as revenues or fail to clarify the nature of revenues. For instance,

Sunbeam Corporation in 1997 included the one-time disposal of product lines in its sales without indicating the non-recurring nature of these sales, giving a false impression of sustainable revenue generation.

- **Classification of Expenses as “Non-Recurring”:** Managers might classify expenses as "special items" to make operating performance appear more attractive. When these items appear regularly, investors should be cautious and focus on net income over long periods.
- **Gross/Operating Margins Out of Line with Competitors or Industry:** A significant disparity might signal superior management or accounting manipulations. Investors should evaluate other warning signals to determine the true cause.

Evaluate Company Culture

A company's culture is an intangible factor that investors should consider when evaluating financial statements for potential accounting manipulation. While a highly competitive mentality in management can be beneficial for business operations, it should not extend to communications with shareholders. Such a mindset can lead to accounting manipulations, as seen in early 21st-century corporate scandals. Investors should assess whether this mentality influences the preparation of financial statements.

Research suggests that a predisposition to earnings manipulation may be more likely when the CEO and board chair positions are held by the same person or when the audit committee lacks financial reporting sophistication and independence. The current financial reporting environment should ideally penalize CEOs who endorse using financial reporting discretion to artificially smooth earnings.

Analyze Restructuring or Impairment Charges

Sometimes, a company's stock price rises after it announces a significant restructuring or impairment charge. The conventional wisdom is that this signals management's readiness to

discard underperforming segments and focus on more profitable activities. However, analysts should recognize that the events leading to such charges did not occur overnight.

Restructuring or impairment charges indicate that prior years' expenses were likely understated, even if no improper financial manipulation occurred. To accurately extrapolate historical earnings trends, analysts should consider making pro forma adjustments to prior years' earnings to reflect a fair allocation of the latest restructuring and impairment charges.

Check whether Management Has a Merger and Acquisition Orientation

Analysts should need to scrutinize companies with aggressive acquisition strategies rigorously. For instance, Tyco International Ltd. acquired over 700 companies from 1996 to 2002. A growth-at-any-cost corporate culture, even with the best intentions, poses severe challenges to operational and financial reporting controls. In Tyco's case, the SEC found that it consistently understated assets acquired, hence lowering future depreciation and amortization charges and overstated liabilities assumed, avoiding expense recognition and potentially increasing future earnings.

In conclusion, warning signals should be evaluated collectively, not in isolation. The presence of multiple warning signs should prompt investors to approach the investee company with caution or consider alternative investments

Question 1

If a company's revenue increases faster than the industry growth rate, even though the product quality has been decreasing and the product price has been increasing relative to the competitors' product prices, which of the following should an analyst *most likely* examine?

- A. The trend of change in accounts receivable.
- B. The company's revenue recognition policies.
- C. Both the trend of change in accounts receivable and the company's revenue recognition policies.

Solution

The correct answer is **C**.

An increasing trend of accounts receivable could indicate that a company might be lowering its credit issuance restrictions to generate more sales. Unfortunately, this could affect the uncollectible debt ratio and result in low earnings quality. Still, the company could also be involved in channel stuffing, making its revenues seem inflated.

Question 2

Which of the following *most likely* indicates that a company is taking advantage of accrual accounting policies to shift current expenses to later periods?

- A. The ratio of cash flow from operations to net income is consistently > 1 .
- B. The ratio of cash flow from operations to net income is consistently $= 1$.
- C. The ratio of cash flow from operations to net income is consistently < 1 .

Solution

The correct answer is **C**.

A consistently less than one ratio signals that a company may use aggressive accounting policies to shift current expenses to later periods to make its current financial position attractive.

A and B are incorrect. They would not signal any accounting manipulation.

Learning Module 11: Financial Analysis Techniques

LOS 11a: describe tools and techniques used in financial analysis, including their uses and limitations

Financial analysis helps assess a company's financial performance over time and identify the trends in that performance. It can also be used to evaluate a company's equity securities, assess its financial risk exposures, and perform necessary due diligence before a prospective merger or acquisition.

Given the diverse purposes for performing financial analysis, the wide range of techniques available, and the often substantial amount of data involved, it is crucial that the analytical approach be tailored to the specific situation.

Recall the steps in the financial analysis framework covered in learning module 1:

Step 1: Articulate the Purpose and Context of the Analysis

Step 2: Collect Data

Step 3: Process Data

Step 4: Analyze and Interpret the Data

Step 5: Develop and communicate conclusions and recommendations

Step 6: Follow-up

Based on financial analysis framework, before starting any financial analysis, the analyst should clearly define the purpose and context by addressing the following points:

1. **Purpose of the Analysis:** What specific questions is the analysis intended to answer?
2. **Level of Detail Required:** What depth of detail is necessary to achieve the analysis's objectives?
3. **Available Data:** What data is accessible for use in the analysis?
4. **Influential Factors and Relationships:** What are the key factors or relationships that will impact the analysis?

5. **Analytical Limitations:** What constraints exist, and how might they affect the analysis?

Once the purpose and context are clarified, the analyst can choose the appropriate techniques (e.g., ratios) to best aid decision-making. Clearly, this falls under steps 3 and 4 of the financial statement analysis framework.

Tools and Techniques Used in Financial Analysis

Several tools and techniques may be used when evaluating a company's financial status. These tools and techniques help analysts evaluate company data through comparisons. It is challenging to determine if a company's financial performance is "good" or "bad" without a clear basis for comparison.

To assess a company's ability to generate and grow earnings and cash flow, and to understand the risks associated with those earnings and cash flows, analysts use:

- **Cross-Sectional Analysis:** Comparing the company to other companies at the same point in time or over the same period.
- **Trend or Time-Series Analysis:** Comparing the company's performance over different periods to identify trends.

Ratio Analysis

Ratios express one quantity in relation to another, typically as a quotient. There are numerous relationships among financial accounts and expected relationships over different time periods. Ratios are an effective method for illustrating these relationships.

Aspects of Ratio Analysis

Several key aspects of ratio analysis are crucial to understand:

1. **Ratios are indicators, not the answers:** A computed ratio serves as an indicator of a

company's performance. It provides insights into what happened but not necessarily why it happened. For instance, to determine which of the two companies was more profitable, an analyst might use the net profit margin, which expresses profit relative to revenue. This is calculated by dividing net income by revenue:

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

2. Accounting Policy Differences: Differences in accounting policies across companies and over time can distort ratios. Meaningful comparisons may require adjustments to the financial data to account for these differences.

3. Relevance of Ratios: Not all ratios are pertinent to every analysis. An essential analytical skill is selecting the relevant ratio(s) to answer a specific research question.

4. Interpretation is Key: Ratio analysis involves more than just computation; interpretation is crucial. Differences in ratios across time and companies can be subtle, and interpreting these differences requires a deep understanding of the specific situation.

Number of Ratios is Limitless

No authoritative bodies prescribe the exact formulas for computing ratios or provide a standardized, comprehensive list of ratios. Formulas and even names of ratios can vary among analysts or databases. The potential number of different ratios is practically limitless.

However, several widely accepted ratios have proven useful. Analysts should be aware that different ratios may be used in practice, and certain industries have unique ratios tailored to their characteristics.

When faced with an unfamiliar ratio, the analyst should examine the underlying formula to understand what the ratio measures.

For example, consider the return on assets (ROA) formula:

$$\text{ROA} = \frac{\text{Operating Income}}{\text{Average Total Assets}}$$

Assume that you are unfamiliar with this ratio and that you want to check whether an ROA of 20% is better than 10%.

Examining the formula, notice that the ratio measures the amount of operating income generated per unit of assets. Thus, generating EUR 20 of operating income per EUR100 of average total assets is better than generating EUR 10. Intuitively, this ratio indicates profitability and efficiency in using assets to generate operating profits.

Needless to say, when encountering a ratio for the first time, analysts should evaluate the numerator and denominator to assess what the ratio measures and how it should be interpreted.

A good rule of thumb is that when an income statement or cash flow statement number is in the numerator and a balance sheet number is in the denominator, an average should be used for the denominator.

It is usually unnecessary to use averages when only balance sheet numbers are used in both the numerator and denominator since both are determined as of the same date. However, some instances may still require averages, such as in the decomposition of return on equity (ROE), which is defined as net income divided by average shareholders' equity. If an average is used in one component ratio, it should be used in the other.

However, if an average is used, judgment is required about which average to use. Most ratio databases use a simple average of the beginning and end-of-year balance sheet amounts for simplicity. If the company's business is seasonal, resulting in asset levels varying by interim period (semiannual or quarterly), using average overall interim periods, if available, may be beneficial. If the analyst has access to monthly data, this can also create a more accurate average.

Advantages and Limitations of Ratio Analysis

Financial ratios offer insights into:

- Economic connections within a company that assist analysts in forecasting earnings and free cash flow;

- A company's financial adaptability, or its capacity to secure the necessary funds for growth and to meet obligations, even under unforeseen conditions;
- The competency of management;
- Developments within the company or industry over time; and
- Comparability with similar companies or the industry as a whole.

Limitations to ratio analysis include:

- **Diversity or uniformity of a company's operations:** Companies with divisions across various industries may find it challenging to locate comparable industry ratios for analysis purposes.
- **Necessity to verify the consistency of ratio analysis results:** Different sets of ratios might reveal conflicting information, with one indicating a problem while another suggests the issue is only temporary.
- **Requirement for professional judgment:** It is essential to determine if a company's ratio falls within an acceptable range. Financial ratios help evaluate growth potential and risk, but they cannot independently determine a company's value, creditworthiness, or overall health. A comprehensive assessment of the company and its external economic and industry environment is vital.
- **Impact of different accounting methods:** Companies often have flexibility in selecting accounting practices, which can lead to incomparable ratios unless adjustments are made. Key accounting considerations include:
 - FIFO, LIFO, or average cost inventory valuation methods. Recall that, IFRS does not permit LIFO.
 - Cost or equity methods for accounting for unconsolidated affiliates;
 - Straight-line versus accelerated depreciation methods and
 - The treatment of leases as operating or finance leases (under US GAAP, lease classification affects expense categorization, whereas IFRS does not allow

operating lease treatment for lessors).

Sources of Ratios

Ratios can be computed using financial statements of companies or from databases such as Bloomberg, Compustat, FactSet, or Thomson Reuters. These databases not only provide data reported in financial statements but also offer calculated ratios. They are favored for their extensive historical data, allowing for trend analysis over multiple years. Additionally, they enable ratio calculations for periods other than the company's fiscal year, such as trailing 12 months (TTM) or the most recent quarter (MRQ).

Analysts need to be aware that different vendors may use distinct formulas to calculate ratios. Analysts should obtain the specific formulas from the vendor and assess whether any adjustments are needed. Database providers often apply judgment when classifying items, which can affect computations. For instance, operating income might not be directly listed on a company's income statement, so the provider may classify items as operating or non-operating. These judgments can influence the accuracy of ratio computations.

Therefore, it's best practice to use the same data source when comparing different companies or evaluating the historical performance of a single company. Analysts should verify the consistency of formulas and data classifications from the data source.

The process of collecting financial data from regulatory filings and calculating ratios can be automated using the eXtensible Business Reporting Language (XBRL). XBRL uses "smart tags" attached to financial information (such as total assets), allowing software to automatically gather data and perform necessary calculations. The development of XBRL is overseen by an international nonprofit consortium, including the International Accounting Standards Board (IASB). Many stock exchanges and regulatory agencies worldwide now use XBRL to receive and distribute public financial reports from listed companies.

Analysts can compare a company to its peers using vendor databases or aggregate industry data. For non-public companies, industry data can be sourced from publications like the Annual Statement Studies by the Risk Management Association or Dun & Bradstreet. These publications often categorize companies into quartiles based on their ratios, helping analysts determine a

company's relative position within the industry.

Common-size Analysis

Common-size analysis entails expressing financial data, including entire financial statements, relative to a single financial statement item or base. The most commonly used bases are total assets or revenue. Essentially, common-size analysis establishes a ratio between each financial statement item and the base item.

This method was illustrated in earlier modules for the income statement, balance sheet, and cash flow statement. In this section, we delve into the common-size analysis of financial statements in greater detail and provide further discussion on their interpretation.

Common-Size Analysis of the Balance Sheet

A vertical common-size balance sheet is created by dividing each item on the balance sheet by the total assets of the same period and expressing the results as percentages. This method highlights the composition of the balance sheet, revealing the mix of assets being used and the sources of financing. It also allows for comparisons between a company's balance sheet composition and that of its peers, providing insights into the reasons for any differences.

A horizontal common-size balance sheet, on the other hand, is prepared by calculating the percentage increase or decrease of each balance sheet item from the previous year or by dividing the quantity of each item by the base year quantity. This approach emphasizes changes in items over time, which can then be compared to expectations.

Example: Common-size analysis of a balance sheet

Consider the following partial balance sheet of a hypothetical company, Prudential World Assets (in millions).

Year	20X4	20X5	20X6	20X7	20X8	20X9
Cash	\$60	\$63	\$55	\$57.5	\$60	\$62.5
Inventory	\$230	\$241.5	\$253	\$264.5	\$264	\$275
Accounts Receivable	\$160	\$168	\$176	\$172.5	\$180	\$187.5
Net Plant and Equipment	\$500	\$525	\$561	\$586.5	\$624	\$650
Intangibles	\$60	\$63	\$55	\$57.5	\$60	\$62.5
Total Assets	\$1,000	\$1,050	\$1,100	\$1,150	\$1,200	\$1,250

Create both vertical and provide the interpretation of the trend in accounts receivables; also, create a horizontal common-size balance sheet.

Solution

The vertical common-size balance sheet is given below:

Year	20X4	20X5	20X6	20X7	20X8	20X9
Cash	6%	6%	5%	5%	5%	5%
Inventory	23%	23%	23%	23%	22%	22%
Accounts Receivable	16%	16%	16%	15%	15%	15%
Net Plant and Equipment	50%	50%	51%	51%	52%	52%
Intangibles	6%	6%	5%	5%	5%	5%
Total assets	100%	100%	100%	100%	100%	100%

Accounts receivables remained stable at 16% of total assets during the first three years. This indicates that the proportion of assets tied up in receivables was consistent, suggesting stable credit policies and collection practices during this period.

However, there is a slight decrease to 15% in the last three years. This 1% decline suggests a few possible scenarios:

- **Improved Collection Efficiency:** The company might have improved its collection processes, resulting in a lower proportion of receivables.
- **Change in Sales or Credit Policies:** The company could have tightened its credit policies, extending less credit to customers, or shifted sales strategies to more cash sales.

Lastly, the horizontal common-size balance sheet is given below:

Year	20X4	20X5	20X6	20X7	20X8	20X9
Cash	100.00%	101.00%	102.01%	103.03%	104.06%	105.10%
Inventory	100.00%	103.00%	106.09%	109.27%	112.55%	115.93%
Accounts Receivable	100.00%	102.00%	104.04%	106.12%	108.24%	110.41%
Net Plant and Equipment	100.00%	104.00%	108.16%	112.49%	116.99%	121.67%
Intangibles	100.00%	100.50%	101.00%	101.51%	102.02%	102.53%
Total assets	100.00%	103.08%	106.27%	109.57%	112.99%	116.53%

The horizontal-common size balance above shows consistent annual growth in accounts receivables. This steady increase can be a positive signal of growing sales and business expansion, indicating that the company is selling more on credit terms.

Note that account receivables growth needs to be managed effectively to ensure that it translates into actual cash inflows and does not lead to significant increases in uncollectible receivables. The company should focus on maintaining a balance between extending credit to boost sales and ensuring timely collections to support cash flow.

Common-Size Analysis of the Income Statement

A vertical common-size income statement involves dividing each income statement item by revenue or, in some cases, by total assets (particularly for financial institutions). For companies with multiple revenue sources, breaking down the revenue into percentage terms can be particularly useful.

Example: Interpretation of Common-Size Income Statement

Consider the following common-size income statement of a hypothetical company (in millions):

	Period 1	Percent of Total Revenue	Period 2	Percent of Total Revenue
Revenue source A	1,020	34%	1,200	40%
Revenue source B	880	29%	600	20%
Revenue source C	1,100	37%	1,200	40%
Total revenue	3,000	100%	3,000	100%
Salaries and employee benefits	600	20%	660	22%
Administrative expenses	750	25%	690	23%
Rent expense	360	12%	330	11%
EBITDA	1,290	43%	1,320	44%
Depreciation and amortization	150	5%	120	4%
EBIT	1,140	38%	1,200	40%
Interest paid	180	6%	150	5%
EBT	960	32%	1,050	35%
Income tax provision	300	10%	270	9%
Net income	660	22%	780	26%

Based on the above common-size income statement, provide interpretation on revenue dynamics, profitability analysis, efficiency in administrative and rent Expenses and effective tax rate and income tax analysis.

Solution

Revenue Dynamics:

Revenues from Service A and Service C have become a significantly greater percentage of the company's total revenue (from 34% and 37% in Period 1 to 40% each in Period 2). Conversely, revenue from Service B has decreased from 29% to 20%. These changes may imply that the company may have strategically shifted its focus towards Services A and C due to their higher market demand or competitive advantage. This shift, however, should be examined in light of the overall profitability.

Profitability Analysis:

The company's EBITDA has slightly increased from 43% to 44% of total revenue. This slight improvement in profitability might suggest that Services A and C have better margins compared to Service B.

The increase in operating expenses, particularly salaries and employee benefits (from 20% to 22%), indicates that Services A and C might require more specialized or higher-paid employees. This could explain the slight increase in overall profitability despite higher costs.

Efficiency in Administrative and Rent Expenses:

Administrative expenses have decreased from 25% to 23%, and rent expenses from 12% to 11%, which could indicate improved efficiency or cost management in these areas, partially offsetting the increased salary expenses.

Effective tax rate and income tax analysis:

The company's income tax as a percentage of sales has decreased from 10% to 9%. The effective tax rate (taxes as a percentage of EBT) has also decreased from approximately 31% ($= 10/32$) to about 26% ($= 9/35$).

The lower effective tax rate might be due to a larger portion of revenues from Services A and C being generated in jurisdictions with lower tax rates. This could be a strategic move to optimize the tax burden. Moreover, there might be specific tax incentives or credits associated with Services A and C, such as R&D credits, investment incentives, or other tax benefits that reduce the overall tax liability.

Uses and Limitations of Common-Size Analysis

Uses

- Provides a detailed understanding of how a company utilizes its assets.
- Identifies the various methods a company employs to finance its operations and growth.

- Facilitates comparison between companies, helping to identify and analyze differences in their financial strategies and performance.

Limitations

- Financial statements reported in different currencies need to be converted to a common currency for accurate comparison.
- Variations in fiscal year-end dates can complicate comparability between companies.
- Differences in accounting standards and practices can hinder direct comparison of financial statements.

Cross-sectional, Trend Analysis and Linkages in Financial Statements

Cross-sectional Analysis

The usefulness of ratios and common-size statements comes from their ability to facilitate comparisons. As such, cross-sectional analysis, also known as "relative analysis," involves comparing a specific metric of one company with the same metric of another company or group of companies at the same point in time or over the same period. This allows for meaningful comparisons even if the companies are of different sizes or operate in different currencies.

Example: Cross-sectional Analysis

Consider the following partial vertical common-size balance sheets for two companies, A and B.

Assets	Company A (millions)	Percent of Total Assets	Company B (millions)	Percent of Total Assets
Cash	\$60	6%	\$63	12%
Receivables	\$160	16%	\$168	33%
Inventory	\$230	23%	\$241.5	27%
Fixed assets net of depreciation	\$500	50%	\$525	55%
Investments	\$50	5%	\$52.5	7%
Total Assets	\$1,000	100%	\$1,050	100%

Compare the liquidity of the two companies.

Solution

Company A demonstrates significantly higher liquidity compared to Company B. Liquidity is determined by how easily assets can be converted to cash. Company A has 6 percent of its assets in cash, whereas Company B holds only 12 percent in cash. Given that cash is generally a low-yield asset and not an efficient use of excess funds, it raises the question of why Company A maintains such a high cash balance. This large cash reserve could indicate that Company A is gearing up for a potential acquisition or it might be holding cash as a buffer against a volatile operating environment.

Additionally, the comparison reveals that a substantial portion of Company B's assets is tied up in receivables (33 percent). This could suggest several possibilities: a higher level of credit sales, changes in asset composition, potentially lower credit or collection standards, or even aggressive accounting practices. This higher percentage of receivables may pose risks if these receivables are not collected promptly.

Trend Analysis

When examining financial statements and ratios, it's crucial to consider trends in the data, whether they are improving or deteriorating, along with the current absolute or relative levels. Trend analysis offers valuable insights into historical performance and growth. With a sufficiently long history of accurate seasonal data, trend analysis can be a powerful tool for planning and forecasting for both management and analysts.

Analyzing horizontal common-size balance sheets reveals structural changes within a business over time. While past trends do not always predict future performance, especially in changing economic or competitive environments, they are more valuable when these environments are stable, or the business is mature. In less stable contexts, historical analysis can still help develop expectations by providing a foundation for understanding past trends which is crucial in assessing whether these trends will continue or shift direction.

Example: Trend Analysis

Consider the following partial horizontal balance sheet of the hypothetical company Prudential World Assets.

Year	20X4	20X5	20X6	20X7	20X8	20X9
Cash	100.00%	101.00%	102.01%	103.03%	104.06%	105.10%
Inventory	100.00%	103.00%	106.09%	109.27%	112.55%	115.93%
Accounts Receivable	100.00%	102.00%	104.04%	106.12%	108.24%	110.41%
Net Plant and Equipment						
Intangibles	100.00%	100.50%	101.00%	101.51%	102.02%	102.53%
Total assets	100.00%	103.08%	106.27%	109.57%	112.99%	116.53%

Analyze the trends in inventory levels and net plant and equipment.

Solution

From 20X4 to 20X9, the inventory has increased by 15.93%. This cumulative growth reflects the company's strategy to maintain higher inventory levels, which could be due to several reasons such as anticipating higher demand, reducing stockouts, or taking advantage of bulk purchasing discounts.

The net plant and equipment have shown a steady growth rate of 4% per year over the six-year period. This consistent increase indicates a continuous investment in the company's fixed assets. From 20X4 to 20X9, the net plant and equipment have increased by 21.67%.

The steady investment in net plant and equipment suggests that the company may be pursuing a strategy of expansion, modernization, or increased production capacity.

Relationship Among Financial Statements

Trend data generated by horizontal common-size analysis can be compared across financial statements to provide insights into a company's performance. For example, if revenue is growing faster than assets, the company may be increasing efficiency, generating more revenue per dollar invested in assets.

Moreover, if net income grows faster than revenue, it indicates increasing profitability. However, the analyst must determine whether this net income growth stems from ongoing operations or non-recurring items.

Additionally, a decline in operating cash flow despite rising revenue and net income warrants further investigation as it may signal issues with earnings quality, potentially due to aggressive revenue reporting. Conversely, if assets grow faster than revenue, it may suggest declining efficiency, necessitating an examination of the asset composition and the reasons for these changes.

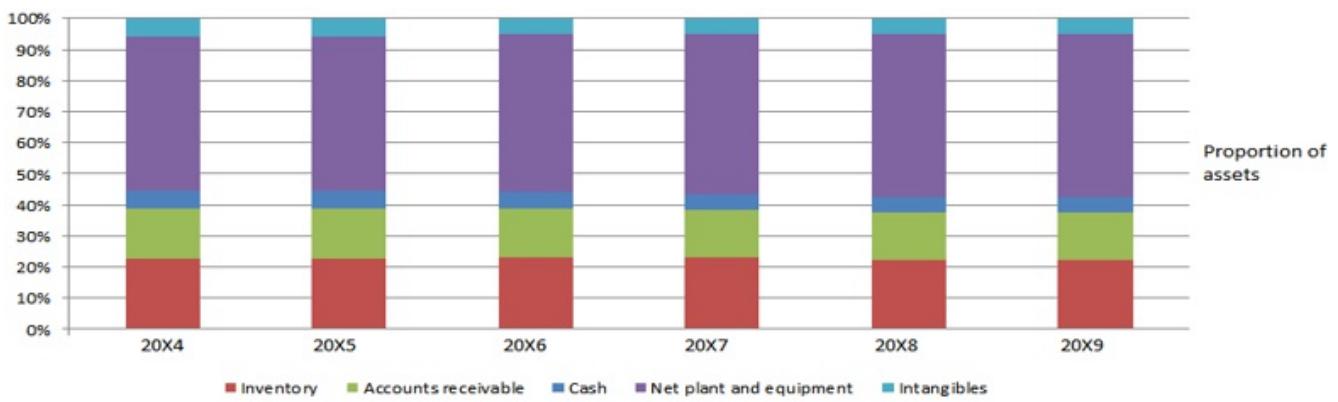
Graphs

Graphs are an effective tool for comparing performance and financial structure over time, highlighting key changes in business operations. They offer analysts and management a visual summary of risk trends within the company. Additionally, graphs can effectively convey an analyst's conclusions about financial health and risk management.

Selecting the right type of graph to present the key findings of a financial analysis requires skill. Generally, pie charts are ideal for showing the composition of a total value, such as assets, over a short period (one or two periods). Line graphs are suitable for illustrating changes in amounts for a few items over a longer period. When both composition and amounts, along with their changes over time, are important, a stacked column graph can be particularly useful.

Example: Graph Analysis

Consider the following stacked column graph of the vertical common-size (partial) balance sheet of the hypothetical company Prudential World Assets:



Analyze the asset composition of the company.

Solution

Overall, the graph shows that the asset composition of Prudential World Assets has been quite stable over the years, with slight increases in inventory and intangibles and a noticeable decrease in cash. The consistency in net plant and equipment and accounts receivable suggests stable operational management. The decreasing cash reserves warrant further investigation to understand the company's cash utilization strategy.

Regression Analysis

When examining the trend in a specific line item or ratio, visually assessing the changes is often possible. However, for more intricate scenarios, regression analysis can be employed to identify relationships or correlations between variables.

For instance, regression analysis might link a company's sales to GDP over time, offering insights into the company's cyclical nature. Furthermore, the statistical relationship between sales and GDP can serve as a foundation for sales forecasts. Regression analysis can also be useful in other contexts, such as examining the relationship between a company's sales and inventory over time or between hotel occupancy and a company's hotel revenues.

Beyond forecasting, regression analysis helps in identifying items or ratios that deviate from expected patterns based on historical statistical relationships.

Distinguishing between Computations and Analysis

Effective analysis integrates both computations and interpretations. Unlike a simple aggregation of data, computations, tables, and graphs, a well-reasoned analysis synthesizes the collected data into a unified understanding. When analyzing past performance, the analysis should not only address what happened but also why it happened and whether it created value. Key questions to consider include:

- **Critical Performance Aspects:** What performance factors are crucial for the company to compete successfully in its industry?
- **Performance Evaluation:** How well did the company meet these critical performance aspects? (This is determined through computations and comparisons with relevant benchmarks, such as the company's historical performance or that of its competitors.)
- **Performance Causes and Strategy Reflection:** What were the main causes of this performance, and how does it align with the company's strategy? (This is established through detailed analysis.)

For forward-looking analysis, additional questions include:

- **Impact of Events or Trends:** What is the likely impact of a specific event or trend? (This is determined through interpretation of the analysis.)
- **Management Response:** How is management likely to respond to this trend? (This is assessed by evaluating the quality of management and corporate governance.)
- **Impact on Future Cash Flows:** How will trends in the company, industry, and economy affect future cash flows? (This is assessed through analysis of corporate strategy and forecasts.)
- **Analyst Recommendations:** What recommendations does the analyst provide? (These are based on the interpretation and forecasting of the analysis results.)
- **Highlighting Risks:** What risks need to be highlighted? (This is established by

evaluating major uncertainties in the forecast and the environment in which the company operates.)

Communicating Analytical Findings in Written Reports

Analysts often need to communicate their findings in a written report. This report should clearly explain how conclusions were reached and the reasons behind specific recommendations. Key elements of an effective report include:

- **Purpose of the Report:** State the purpose of the report unless it is already obvious.
- **Business Context:** This includes:
 - **Economic Environment:** Describe the country or region, macroeconomic factors, and the sector in which the company operates.
 - **Financial Infrastructure:** Discuss the role of accounting, auditing, and rating agencies.
 - **Legal and Regulatory Environment:** Highlight significant constraints affecting the company.
- **Corporate Governance and Management Strategy:** This involves:
 - Evaluating the company's governance practices.
 - Assessing the management's strategy and competitive advantages.
- **Financial and Operational Data:**
 - Analyze key financial and operational data.
 - Identify and explain the key assumptions used in the analysis.
- **Conclusions and Recommendations:**
 - Provide well-supported conclusions.
 - Make recommendations while acknowledging the analysis's limitations and potential risks.

Using 3-10 years of data and appropriate analytic techniques enhances the narrative. The report should be continuous and cohesive, integrating all these elements to present a clear and comprehensive picture of the findings and their implications.

Question 1

Which of the following is *least likely* a typical approach to comparing financial data reported in different currencies?

- A. Comparing financial data using ratios.
- B. Using trailing twelve months of data for each company being compared.
- C. Translating all reported currencies into one common currency using the prevailing foreign exchange rates at the relevant period's end.

Solution

The correct answer is **B**.

Using trailing twelve months of data is useful when differences exist in the fiscal year ends of the companies being compared. It is not used for comparing companies whose differences lie in the reporting currency used to prepare their financial statements.

Options A and C describe typical approaches to overcome differences in reported currencies.

Question 2

To compare the performance of two companies with different end-of-period dates, an analyst would *most likely* use:

- A. Ratio analysis.
- B. Regression analysis.
- C. Trailing twelve months analysis.

Solution

The correct answer is **C**.

It is better to start the comparison by compounding the financial results of each company. The rationale for doing so is to match the data collected on each company with the data collected on the other company (in terms of time of occurrence). In other words, an analyst must first compound the financial data of the trailing twelve months of each company to make sure that he is comparing apples to apples.

LOS 11b: calculate and interpret activity, liquidity, solvency, and profitability ratios

Financial ratios are used to express one financial quantity regarding another. Financial ratios can assist with company and security valuations, stock selections, and forecasting.

A variety of categories may be used to classify financial ratios. Although the names of these categories and the ratios included in each can vary significantly, common categories used include activity, liquidity, solvency, profitability, and valuation ratios. Each category measures a different aspect of a company's business. However, all categories are essential in evaluating a company's ability to generate cash flows from its business operations.

Financial ratios require contextual interpretation. Typically, they are compared with:

- **Prior Period Results:** Trend analysis can highlight whether a company's performance and financial position are improving or deteriorating over time.
- **Expectations:** These are forecasts or estimates for key metrics like sales growth, profit margins, and leverage ratios set by the analyst or external analysts before the actual results are published. Variances from these expectations should be analyzed to adjust forecasts for future periods.
- **Industry Peers and Competitors (Cross-Sectional Analysis):** Comparing a company with others in its industry involves relating its financial ratios to industry norms or a subset of companies in the same industry. When using industry norms, several considerations should be kept in mind:
 - Companies may operate in multiple lines of business, which can distort aggregate financial ratios. It's better to examine industry-specific ratios for each line of business.
 - Different business models and corporate strategies can impact certain financial ratios.
 - Some ratios are specific to certain industries and may not be relevant across all industries.

- Variations in accounting methods used by different companies can distort financial ratios.
- **Company Goals and Strategy:** Actual financial ratios can be compared with the company's goals to assess whether these objectives are being met and if the results align with the company's strategy.
- **Economic Conditions:** For cyclical companies, financial ratios generally improve when the economy is strong and declines during recessions. Therefore, financial ratios should be evaluated in the context of the current phase of the business cycle.

Activity Ratios

Activity ratios are also known as asset utilization ratios or operating efficiency ratios. They measure how efficiently a company performs daily tasks, such as managing various assets. These ratios generally combine income statement information in the numerator and balance sheet information in the denominator.

The list below describes the most commonly used activity ratios.

Inventory Turnover and Days of Inventory on Hand (DOH)

Inventory turnover is calculated as

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

Inventory turnover reflects the amount of resources invested in inventory, also called the carrying costs, and can serve as an indicator of inventory management effectiveness.

On the other hand, DOH is calculated as:

$$\text{DOH} = \frac{\text{Number of days in period}}{\text{Inventory turnover}}$$

The ratio can also be used to measure the effectiveness of inventory management.

Receivables Turnover and Days of Sales Outstanding (DSO)

Receivables turnover is given by:

$$\text{Receivables turnover} = \frac{\text{Revenue}}{\text{Average receivables}}$$

The receivable turnover ratio measures the efficiency of a company's credit and collection processes. A relatively high receivables turnover ratio may indicate a company has highly efficient credit and collections. Similarly, it could imply that a company's credit or collection policies are too stringent.

On the other hand, the day of sales outstanding is calculated as:

$$\text{DSO} = \frac{\text{Number of days in period}}{\text{Receivables turnover}}$$

DSO measures the time that elapses between a sale and cash collection. It reflects how fast a company collects cash from customers to whom it extends credit. A low DSO indicates that a company is efficient in its credit and collection processes.

Similar to inventory management, comparing the company's sales growth to the industry can help analysts determine if sales are being lost due to strict credit policies. Additionally, comparing the company's estimates of uncollectible accounts receivable and actual credit losses with past experiences and peer companies can help assess whether low turnover is due to credit management issues.

Payables Turnover and Number of Days of Payables

Payables turnover is calculated as:

$$\text{Payables turnover} = \frac{\text{Purchases}}{\text{Average trade payables}}$$

Payables turnover measures the number of times a company theoretically pays off all its creditors per year.

On other hand, the number of days of payables is computed as:

$$\text{Number of days of payables} = \frac{\text{Number of days in period}}{\text{Payables turnover}}$$

The number of payable days reflects the average number of days a company takes to pay its suppliers.

A high payables turnover ratio (low days payable) compared to the industry might suggest that the company is not fully utilizing available credit facilities or is taking advantage of early payment discounts. Conversely, a low turnover ratio (high days payable) could signal difficulties in making timely payments or taking advantage of lenient supplier terms.

In such cases, examining other ratios simultaneously is beneficial. If liquidity ratios show the company has enough cash and short-term assets to meet obligations while having a high days payable ratio, the analyst might lean towards lenient supplier credit and collection policies as the reason.

Working Capital Turnover

Working capital turnover is calculated as

$$\text{Working capital turnover} = \frac{\text{Revenue}}{\text{Average working capital}}$$

Working capital turnover indicates how efficiently a company generates revenue with its working capital. According to the formula for working capital turnover, a working capital turnover ratio of 5.0, for example, means that the company produces USD 5 of revenue for every USD 1 of working capital. As such, a high working capital turnover ratio indicates greater efficiency.

Note that working capital can be close to zero or even negative for some companies, making the working capital turnover ratio difficult to interpret accurately.

Fixed Asset Turnover

Fixed asset turnover is calculated as:

$$\text{Fixed asset turnover} = \frac{\text{Revenue}}{\text{Average net fixed assets}}$$

Fixed asset turnover measures how efficiently a company generates revenues from its investments in fixed assets. A higher fixed asset turnover ratio indicates a more efficient use of fixed assets in generating revenue.

Total Asset Turnover

Total asset turnover is defined as:

$$\text{Total asset turnover} = \frac{\text{Revenue}}{\text{Average total assets}}$$

Total asset turnover measures a company's overall ability to generate revenues with a given level of assets. That is, a total asset turnover ratio of 1.50 would indicate that the company generates USD 1.20 in revenue for every USD 1 of average assets. As such, a low asset turnover ratio can indicate inefficiency or the company's relative capital intensity.

Since this total asset turnover ratio includes fixed and current assets, inefficient working capital management can distort overall interpretations. Therefore, it's beneficial to analyze working capital and fixed asset turnover ratios separately.

A low asset turnover ratio may indicate inefficiency or the relative capital intensity of the business. The ratio also reflects strategic decisions by management, such as whether to adopt a more labor-intensive and less capital-intensive approach or a more capital-intensive and less labor-intensive approach to its operations.

Example: Interpreting DSO and DOH

ABC Corporation is a fictional manufacturing firm. To analyze management's operational efficiency, an analyst gathers the following activity ratios from a reliable data source.

Ratio	2019	2018	2017	2016
Days of Inventory Held (DOH)	34.21	39.30	41.80	47.10
Days Sales Outstanding (DSO)	44.00	55.30	50.20	75.50
Total Asset Turnover	0.40	0.32	0.25	0.21

Which of the following statements best explains the decrease in DOH from 39.30 in 2018 to 34.21 in 2019 for ABC Corporation?

- A. The company increased its sales significantly in 2019.
- C. The company extended its credit terms to customers.
- B. The company reduced its inventory levels due to an inventory correction.

Solution

The correct answer is **C**.

The decrease in DOH is primarily due to an inventory correction, where the company recorded an allowance for the decline in market value and obsolescence of inventory. DOH (Days of Inventory Held) is calculated as:

$$DOH = \frac{\text{Number of days in period}}{\text{Inventory turnover}}$$

where,

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

When the company reduces the value of its inventory due to an allowance for obsolescence, the numerator (Average Inventory) decreases, leading to a lower DOH.

A is incorrect. While increased sales can impact various metrics, the primary reason for the decrease in DOH was the inventory correction and allowance, which directly affected the numerator in the DOH formula.

B is incorrect. Extending credit terms would primarily affect DSO (Days Sales Outstanding), not

DOH. DSO is calculated as:

$$DSO = \frac{\text{Number of days in period}}{\text{Receivables turnover}}$$

where

$$\text{Receivables turnover} = \frac{\text{Revenue}}{\text{Average receivables}}$$

Extending credit terms would increase Accounts Receivable, impacting DSO rather than DOH.

Liquidity Ratios

Liquidity ratios measure a company's ability to satisfy its short-term obligations. These ratios reflect a company's position at a point in time. They, therefore, usually use ending balance sheet data rather than averages. The list below describes the most commonly used liquidity ratios.

Current Ratio

The current ratio is calculated as follows:

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

A higher current ratio signifies greater liquidity, indicating a stronger ability to meet short-term obligations. Conversely, a lower current ratio suggests less liquidity, implying a higher dependency on operating cash flow and external financing to fulfill short-term obligations. The current ratio assumes that inventories and accounts receivable are liquid.

Quick Ratio

The quick ratio is calculated as:

$$\text{Quick ratio} = \frac{\text{Cash} + \text{Short-term marketable investments} + \text{Receivables}}{\text{Current liabilities}}$$

A higher quick ratio indicates a higher level of liquidity or ability to meet short-term obligations. It is a better indicator of liquidity than the current ratio in instances where inventory is illiquid.

The quick ratio is more conservative than the current ratio because it includes only the more liquid current assets, also known as "quick assets," in relation to current liabilities. Similar to the current ratio, a higher quick ratio indicates greater liquidity.

By being conservative, it implies that quick ratio takes into account that certain current assets, such as prepaid expenses, some taxes, and employee-related prepayments, represent costs paid in advance and cannot usually be converted back into cash. It also considers that inventory might not be easily and quickly converted into cash and that a company might not be able to sell all its inventory at its carrying value, especially if required to do so quickly.

Therefore, in situations where inventories are illiquid, as indicated by low inventory turnover ratios, the quick ratio may provide a better indication of liquidity than the current ratio.

Cash Ratio

Cash ratio is defined as:

$$\text{Cash ratio} = \frac{\text{Cash} + \text{Short-term marketable investments}}{\text{Current liabilities}}$$

The cash ratio is typically a reliable measure of an entity's liquidity during a crisis because it includes only highly marketable short-term investments and cash. However, during a general market crisis, the fair value of marketable securities could drop significantly due to market factors, which might render this ratio less reliable.

Defensive Interval Ratio

The defensive interval ratio is computed as follows:

$$\text{Defensive interval ratio} = \frac{\text{Cash} + \text{Short-term marketable investments} + \text{Receivables}}{\text{Daily cash expenditures}}$$

The defensive interval ratio measures how long a company can pay its daily expenditures using only its existing liquid assets without any additional cash inflow.

Cash Conversion Cycle (or Net Operating Cycle)

The cash conversion cycle is calculated using the following formula:

$$\text{Cash conversion cycle} = \text{DOH} + \text{DSO} - \text{Number of days of payables}$$

The cash conversion cycle metric measures the time span from when a company invests in working capital until it collects cash.

A shorter cash conversion cycle indicates higher liquidity, meaning the company only needs to finance its inventory and accounts receivable for a brief period. Conversely, a longer cash conversion cycle signals lower liquidity, suggesting that the company must finance its inventory and accounts receivable for an extended period, potentially requiring more capital to fund current assets.

Solvency Ratios

Solvency ratios measure a company's ability to satisfy its long-term obligations. They provide information about the relative debt amount in a company's capital structure. Moreover, they reveal the adequacy of a company's earnings and cash flow to cover interest expenses and other fixed charges as they fall due.

There are two types of solvency ratios: debt ratios, which focus on the balance sheet and measure the amount of debt capital relative to equity capital, and coverage ratios, which focus on the income statement and measure the ability of a company to cover its debt payments. Both ratios help assess a company's solvency and evaluate the quality of its bonds and other debt obligations.

Below is a list of the most used solvency ratios (Debt Ratios).

Debt-to-Assets Ratio

By the name, the debt-to-asset ratio is calculated as:

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

Debt-to-Asset ratio measures the percentage of a company's total assets financed with debt. A higher ratio implies higher financial risk and weaker solvency.

Debt-to-Capital Ratio

Debt-to-capital ratio is computed as:

$$\text{Debt-to capital ratio} = \frac{\text{Total debt}}{\text{Total debt} + \text{Total shareholders' equity}}$$

Debt-to-capital ratio measures the percentage of a company's capital (debt + equity) represented by debt. A higher ratio implies higher financial risk and weaker solvency.

Debt-to-Equity Ratio

The debt-to-equity ratio is calculated as:

$$\text{Debt-to-equity ratio} = \frac{\text{Total debt}}{\text{Total shareholders' equity}}$$

The debt-to-equity ratio measures the amount of debt capital relative to equity capital. A higher ratio implies higher financial risk and weaker solvency.

Financial Leverage Ratio

Financial leverage ratio is defined as:

$$\text{Financial leverage ratio} = \frac{\text{Average total assets}}{\text{Average total equity}}$$

This measures the number of total assets that are supported for each money unit of equity. The higher the ratio, the more leveraged the company uses debt and other liabilities to finance

assets.

Debt-to-EBITDA Ratio

The formula for debt-to-EBITDA is given by:

$$\text{Debt-to-EBITDA} = \frac{\text{Total or net debt}}{\text{EBITDA}}$$

The debt-to-EBITDA ratio calculates the years needed to repay total debt using EBITDA (an approximation of operating cash flow). It's often used in debt covenants between issuers and investors.

The coverage ratios include:

Interest Coverage Ratio

Calculated as:

$$\text{Interest coverage} = \frac{\text{EBIT}}{\text{Interest payments}}$$

Interest coverage measures the number of times a company's EBIT could cover its interest payments. A higher ratio indicates more robust solvency.

Fixed-charge Coverage Ratio

Fixed-charge coverage is calculated as:

$$\text{Fixed-charge coverage ratio} = \frac{\text{EBIT} + \text{Lease payments}}{\text{Interest payments} + \text{Lease payments}}$$

The fixed-charge coverage ratio measures the number of times a company's earnings (before interest, taxes, and lease payments) can cover its interest and lease payments. A higher ratio indicates more robust solvency.

Example: Calculating Financial Leverage

HydroElec, a Canadian public utility, is being assessed for solvency by a credit analyst based on financial statements for the year ending 31 December 2023. The following data has been extracted from the company's 2023 annual report:

Item	2023	2021	2020
Total Assets	850,000	790,000	720,000
Short-Term Debt	25,000	20,000	18,000
Long-Term Debt	400,000	350,000	300,000
Total Liabilities	600,000	550,000	500,000
Total Equity	250,000	240,000	220,000

Which of the following best describes the trend in HydroElec's financial leverage from 2021 to 2023?

- A. The financial leverage increased, indicating higher risk.
- B. The financial leverage remained the same.
- C. The financial leverage decreased, indicating lower risk.

Solution:

The correct answer is **A**.

We start by calculating financial leverage for each year. To determine HydroElec's financial leverage, we calculate the average total assets and average total equity for the years 2021 and 2023. The average total assets for 2023 are:

$$\text{Average Total Assets 2023} = \frac{850,000 + 790,000}{2} = 820,000$$

The average total equity for 2023 is:

$$\text{Average Total Equity 2023} = \frac{250,000 + 240,000}{2} = 245,000$$

The financial leverage ratio for 2023 is then:

$$\text{Financial Leverage 2023} = \frac{820,000}{245,000} = 3.35$$

For 2021, the average total assets were:

$$\text{Average Total Assets 2021} = \frac{790,000 + 720,000}{2} = 755,000$$

The average total equity for 2021 was:

$$\text{Average Total Equity 2021} = \frac{240,000 + 220,000}{2} = 230,000$$

The financial leverage ratio for 2021 was:

$$\text{Financial Leverage 2021} = \frac{755,000}{230,000} = 3.28$$

The trend indicates an increase in financial leverage from 3.28 in 2021 to 3.35 in 2023, suggesting a rise in financial risk.

B is incorrect. The financial leverage ratio actually increased, not remained the same.

C is incorrect. The financial leverage ratio increased, indicating a higher level of risk.

Profitability Ratios

Profitability ratios measure a company's ability to generate profits from its resources (assets). There are two types of profitability ratios: (i) return-on-sales profitability ratios, which express various sub-totals on the income statement as a percentage of revenue, and (ii) return-on-investment profitability ratios, which measure income relative to the assets, equity, or total capital employed by a company.

The list below describes the most used solvency ratios:

Gross Profit Margin

Definition:

$$\text{Gross profit margin} = \frac{\text{Gross profit}}{\text{Revenue}}$$

Gross profit margin indicates the percentage of revenue available to cover operating and other expenses and generate profit. A higher gross profit margin indicates a combination of higher product pricing and lower product costs.

Operating Profit Margin

Definition:

$$\text{Operating profit margin} = \frac{\text{Operating income}}{\text{Revenue}}$$

An operating profit margin that increases faster than the gross profit margin can indicate improvements in controlling operating costs, such as administrative overheads. On the other hand,

Pretax Margin

Definition:

$$\text{Pretax margin} = \frac{\text{EBT}}{\text{Revenue}}$$

Pretax margin reflects the effect on the profitability of leverage and other non-operating income and expenses.

If a company's pretax margin rises mainly due to increasing non-operating income, the analyst should assess whether this growth indicates a strategic shift in the company's business focus and evaluate the likelihood of its continuation.

Net Profit Margin

$$\text{Net profit margin} = \frac{\text{Net income}}{\text{Revenue}}$$

Net profit margin measures how much each dollar collected as revenue translates into profit.

Return on Assets (ROA)

Return on Assets (ROA) evaluates the earnings a company generates from its assets. A higher ROA indicates that the company is efficiently generating more income with a given asset level. This ratio is commonly calculated as follows:

$$\text{ROA} = \frac{\text{Net Income}}{\text{Average Total Assets}}$$

A potential issue with this calculation is that net income represents returns to equity holders, while assets are funded by both equity and debt. Since interest expense is subtracted in the numerator, some analysts prefer to add back interest expense, adjusted for taxes, as follows:

$$\text{Adjusted ROA} = \frac{\text{Net Income} + \text{Interest Expense} \times (1 - \text{Tax Rate})}{\text{Average Total Assets}}$$

Alternatively, some analysts use a pre-interest and pre-tax basis to calculate operating ROA, given by:

$$\text{Operating ROA} = \frac{\text{Operating Income (EBIT)}}{\text{Average Total Assets}}$$

Operating ROA measures returns before deducting interest on debt, reflecting the return on all invested assets, regardless of how they are financed.

Return on Invested Capital

Definition:

$$\text{Return on Invested Capital} \\ \text{EBIT} \times (1 - \text{Effective tax rate}) \\ = \frac{\text{Average total short and long-term debt and equity}}{}$$

Return on invested capital (ROIC) assesses a company's after-tax profitability on all its employed capital, including short-term debt, long-term debt, and equity. It's calculated before deducting interest on debt capital, similar to operating ROA.

Return on Equity (ROE)

Definition:

$$\text{Return on Equity} = \frac{\text{Net income}}{\text{Average total equity}}$$

ROE measures the return a company earns on its equity capital, including minority equity, preferred equity, and common equity.

Return on Common Equity

Definition:

$$\text{Return on Common Equity} = \frac{\text{Net income} - \text{Preferred dividends}}{\text{Average common equity}}$$

Return on common equity measures the return earned by a company only on its common equity.

Example: Evaluation of a Company Using Ratio Analysis

The following information on a company is provided for the periods ended December 31, 2015, and December 31, 2016.

Ratios	December 31, 2016	December 31, 2015
Return on equity	5.75%	4.12%
Return on assets	3.17%	2.98%
Current ratio	2.13	1.53
Inventory turnover	5.8	1.7
Net profit margin	3.23%	1.56%
Debt-to-assets	56.23%	65.00%

Evaluate the performance of the company using ratio analysis

Solution

The table demonstrates that overall, the company's performance improved from 2015 to 2016.

This is highlighted by:

- An increase in profitability is indicated by increases in the values of the ROE, ROA, and net profit margin ratios;
- An increase in liquidity as indicated by the increase in the current ratio;
- The increase in the inventory turnover ratio evidences an increase in asset utilization.
- Stronger solvency as evidenced by the decrease in the debt-to-assets ratio.

Question 1

You have been provided with the following information on Company ABC for the year 2020:

Revenue: \$5,276,987;

Gross profit: \$3,534,099; and

Net income: \$2,956,123.

Company ABC's net profit margin is *closest to*:

- A. 56.02%.
- B. 66.97%
- C. 83.64%

Solution

The correct answer is A.

$$\text{Net profit margin} = \frac{\text{Net income}}{\text{Revenue}} = \frac{\$2,956,123}{\$5,276,987} = 56.02\%$$

Question 2

Which of the following categories of ratios could be used to evaluate a company's ability to repay a bank loan?

- A. Liquidity ratios.
- B. Solvency ratios.
- C. Profitability ratios.

Solution

The correct answer is B.

Solvency ratios measure a company's ability to meet long-term obligations such as bank loans and bond obligations.

A is incorrect. Liquidity ratios measure a company's ability to satisfy its short-term obligations.

C is incorrect. Profitability ratios measure a company's ability to generate profits from its resources (assets).

LOS 11c: describe relationships among ratios and evaluate a company using ratio analysis

Recall that financial ratios express one financial quantity concerning another and can be used to evaluate a company's performance over time. By reducing the effect of company size, ratios can also enhance comparison between companies.

Financial Ratio Relationships

It is crucial to examine a variety of financial ratios rather than focusing on a single ratio or category in isolation to understand a company's overall position and performance. Experience indicates that insights from one ratio category can clarify questions raised by another. The most accurate overall picture emerges by integrating information from all sources, providing a comprehensive understanding of the company's financial health.

Consider the following example.

Example: Contradicting Liquidity Ratios

An analyst is assessing the liquidity of Maple Manufacturing, a Norwegian manufacturing company, and gathers the liquidity ratios and activity ratios shown below:

Ratio	2023	2022	2021
Current Ratio	2.1	1.9	1.6
Quick Ratio	0.8	0.9	1.0
Days of Inventory Held (DOH)	55	45	30
Days Sales Outstanding (DSO)	24	28	30

Which of the following best explains the observed change in Maple Manufacturing's liquidity ratios from 2021 to 2023?

- A. The company increased its cash holdings.
- B. The company improved its sales significantly.
- C. The company used proceeds from receivables to purchase inventory.

Solution

The correct answer is **B**.

The ratios present a conflicting view of the company's liquidity. Based on the increase in its current ratio from 1.6 to 2.1, the company appears to have strong and improving liquidity; however, the decline in the quick ratio from 1.0 to 0.8 suggests that its liquidity is deteriorating. Since both ratios use current liabilities as the denominator, the difference must be due to changes in an asset included in the current ratio but not in the quick ratio, such as inventories.

The company's DOH has increased from 30 days to 55 days, indicating that the company is holding larger amounts of inventory relative to sales. Meanwhile, the decrease in DSO implies that the company is collecting receivables faster. If the proceeds from these collections were held as cash, there would be no effect on either the current ratio or the quick ratio. However, if the proceeds were used to purchase inventory, there would be no effect on the current ratio, but the quick ratio would decline, which matches the observed pattern.

Collectively, these ratios suggest that liquidity is declining and that the company may need to address an inventory management issue.

A is incorrect. If the company increased its cash holdings, both the current ratio and the quick ratio would improve.

C is incorrect. Improved sales might affect inventory levels and receivables, but the observed pattern in the liquidity ratios is not directly explained.

Question 1

Which of the following statements is *least likely* accurate?

- A. It is necessary to use averages whenever only balance sheet items are included in a ratio.
- B. Evaluating a ratio's numerator and denominator can help determine what the ratio is attempting to measure and how it should be interpreted.
- C. Whenever an income statement item is represented in the numerator, and a balance sheet item is represented in the denominator of a ratio, it is advisable to use an average value of the balance sheet item in the denominator.

Solution

The correct answer is A.

It is unnecessary to use averages whenever only balance sheet items are included in a ratio, as both should have been determined on the same date. Both statements in B and C are accurate.

Question 2

Xena Corp reported the following information in its latest financial reports:

Inventory turnover at the beginning of the period: 10

Inventory turnover at the end of the period: 12

Gross profit margin: 30%(same as last year)

Revenue: \$3,000,000M (same as last year)

What conclusion can you *most likely* make out of this information?

- A. The company decreased its inventory.

- B. The company increased the total cost of goods sold.
- C. The total cost of goods sold for the company remained constant.

Solution

The correct answer is A.

Considering that the inventory turnover ratio has changed, the company must have either increased the total cost of goods sold or decreased the held inventory during the period. The company's revenue and gross profit margin remained constant during the period, so it must have decreased its holding inventory.

LOS 11d: demonstrate the application of DuPont analysis of return on equity and calculate and interpret effects of changes in its components

Recall that, return on equity (ROE) measures the return a company generates on its equity capital. To understand the factors driving a company's ROE, it is helpful to decompose ROE into its component parts, a technique often referred to as DuPont analysis, originally developed by DuPont.

DuPont analysis involves expressing the basic ratio of net income divided by average shareholders' equity as the product of several component ratios. Each of these component ratios reflects a distinct aspect of the company's performance that influences ROE.

So what is the significance of DuPont analysis? Decomposing ROE helps evaluate how different aspects of performance, such as efficiency, operating profitability, taxes, and financial leverage, impact the company's profitability. Moreover, DuPont analysis is valuable for understanding changes in ROE over time for a particular company and for comparing ROE between different companies during a specific period.

Lastly, management can use the analysis to identify areas for improvement to enhance ROE since DuPont analysis highlights the interconnectedness of various financial ratios and their collective influence on the return generated for the company's equity investors.

Decomposition of ROE (DuPont Analysis)

Analysts have devised various methods for decomposing ROE (Return on Equity). One of the most commonly used methods involves decomposing ROE into two components. Recall that:

$$\text{ROE} = \frac{\text{Net income}}{\text{Average shareholders' equity}}$$

We can decompose ROE as follows:

Method 1:

.....

$$\begin{aligned}
 \text{ROE} &= \frac{\text{Net income}}{\text{Average shareholders' equity}} \\
 &= \left(\frac{\text{Net income}}{\text{Average total assets}} \right) \times \left(\frac{\text{Average total assets}}{\text{Average shareholders' equity}} \right) \\
 \Rightarrow \text{ROE} &= \text{Return on Assets (ROA)} \times \text{Leverage}
 \end{aligned}$$

This implies that ROE is determined by a company's ROA and its financial leverage. As such, a company can boost its ROE by either enhancing its ROA or by increasing its leverage.

Recall that leverage is calculated as average total assets divided by average shareholders' equity. If a company had no leverage (no liabilities), its leverage ratio would be 1.0, making ROE equal to ROA. As a company assumes more liabilities, its leverage increases.

As long as a company can borrow at a rate lower than the return it earns on the borrowed funds, it is effectively using leverage, which increases ROE. Conversely, if the borrowing cost exceeds the return on investment, increased leverage will decrease ROE because borrowing would reduce ROA.

Method 2:

Just as ROE can be decomposed, its individual components, like ROA, can also be broken down. By further decomposing ROA, we can express ROE as a product of three component ratios:

$$\begin{aligned}
 \text{ROE} &= \frac{\text{Net income}}{\text{Average shareholders' equity}} \\
 &= \left(\frac{\text{Net income}}{\text{Revenue}} \right) \times \left(\frac{\text{Revenue}}{\text{Average total assets}} \right) \\
 &\quad \times \left(\frac{\text{Average total assets}}{\text{Average shareholders' equity}} \right) \\
 \Rightarrow \text{ROE} &= \text{Net profit margin} \times \text{Total asset turnover} \times \text{Leverage}
 \end{aligned}$$

This decomposition illustrates that a company's ROE is influenced by its net profit margin, efficiency, and leverage.

The net profit margin indicates profitability by showing how much income a company earns per monetary unit (e.g., euro or US dollar) of sales. The asset turnover ratio reflects efficiency by measuring how much revenue a company generates per monetary unit of assets.

Essentially, ROA is decomposed into net profit margin and total asset turnover. A company's ROA is thus a function of its profitability (net profit margin) and efficiency (total asset turnover).

The third term on the right-hand side of the equation is the equity multiplier, which measures financial leverage by indicating the total amount of a company's assets relative to its equity capital.

Method 3:

To further separate the effects of taxes and interest, the net profit margin can further be decomposed, leading to:

$$\begin{aligned}
 \text{ROE} &= \frac{\text{Net income}}{\text{Average shareholders' equity}} \\
 &= \left(\frac{\text{Net income}}{\text{EBT}} \right) \times \left(\frac{\text{EBT}}{\text{EBIT}} \right) \times \left(\frac{\text{EBIT}}{\text{Revenue}} \right) \\
 &\quad \times \left(\frac{\text{Revenue}}{\text{Average total assets}} \right) \\
 &\quad \times \left(\frac{\text{Average total assets}}{\text{Average shareholders' equity}} \right) \\
 \Rightarrow \text{ROE} &= \text{Tax burden} \times \text{Interest Burden} \times \text{EBIT margin} \\
 &\quad \times \text{Total asset turnover} \times \text{Leverage}
 \end{aligned}$$

This 5-way decomposition is the Dupont Analysis method found in financial databases such as Bloomberg.

The tax burden measures the impact of taxes on ROE, representing one minus the average tax rate, or the portion of a company's pretax profits that it retains. In other words, tax burden can be expressed in decimal or percentage form. For example, a 35 percent tax rate would yield a factor of 0.65 or 65%. Consequently, a higher value for the tax burden indicates that the company retains a larger portion of its pretax profits, reflecting a lower tax rate. Conversely, a decrease in the tax burden ratio indicates a higher tax rate, leaving the company with a smaller portion of its pretax profits.

The interest burden reflects the impact of interest on ROE, with higher borrowing costs leading to a reduction in ROE. Some analysts prefer using operating income instead of EBIT for this term and the following one. Either operating income or EBIT is acceptable if used consistently. In such

cases, the second term would measure both the impact of interest expense and non-operating income on ROE.

EBIT margin measures the effect of operating margin if operating income is used or EBIT margin if EBIT is used on ROE. This term primarily assesses the impact of operating profitability on ROE.

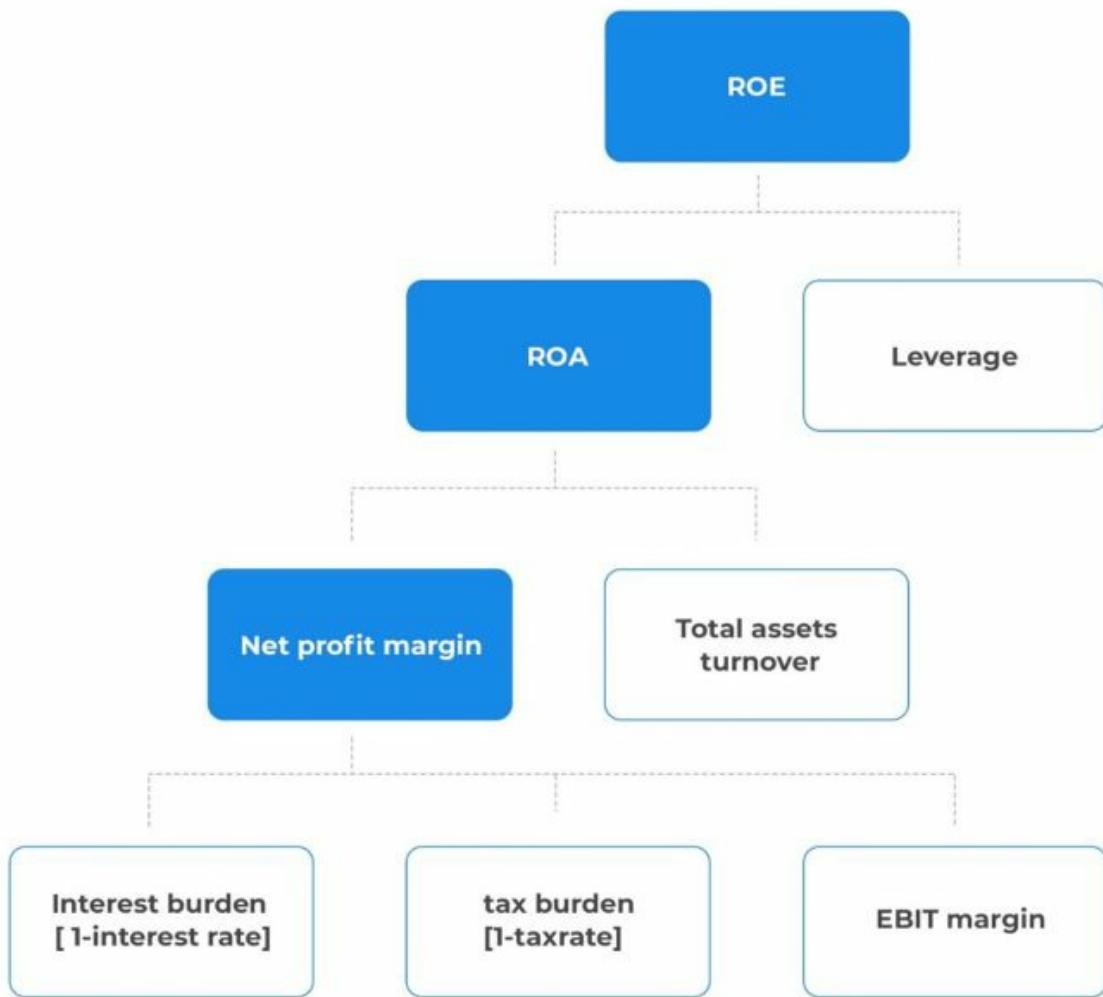
The total asset turnover ratio indicates the overall efficiency of the company in generating revenue per unit of total assets.

The financial leverage ratio measures the total amount of a company's assets relative to its equity capital.

The figure below illustrates the idea behind DuPont's analysis.



DuPont Analysis



Question 1

Given the following financial data, what is the company's ROE?

Net income	50,000
Revenue	285,000
Average total assets	1,000,000
Average shareholder's equity	600,000

- A. 5.29%
- B. 8.33%
- C. 1.14%

Solution

The correct answer is B.

$$\text{ROE} = \left(\frac{\text{Net income}}{\text{Revenue}} \right) \times \left(\frac{\text{Revenue}}{\text{Average total assets}} \right)$$

$$\times \left(\frac{\text{Average total assets}}{\text{Average shareholders' equity}} \right)$$

$$\text{ROE} = \left(\frac{50,000}{285,000} \right) \times \left(\frac{285,000}{1,000,000} \right) \times \left(\frac{1,000,000}{600,000} \right)$$

$$= 0.1754 \times 0.285 \times 1.667 = 8.33\%$$

LOS 11e: describe the uses of industry-specific ratios used in financial analysis

There is no universally accepted definition or classification of ratios. Ratios indicate a company's performance and value, but their significance varies by industry. Industry-specific ratios, like same-store sales changes in retail, help distinguish growth sources. In regulated sectors like banking, specific regulatory ratios, like liquidity and capital adequacy, reflect compliance and risk exposure. Industry-specific metrics are crucial, especially in early-stage industries with unprofitable companies.

The following presents some examples of industry-specific ratios.

Business Risk Ratio

Coefficient of variation of operating income	$\frac{\text{Standard deviation of operating income}}{\text{Average operating income}}$
Coefficient of variation of net income	$\frac{\text{Standard deviation of net income}}{\text{Average net income}}$
Coefficient of variation of revenues	$\frac{\text{Standard deviation of revenue}}{\text{Average revenue}}$

Financial Sector Ratios

Capital adequacy	$\frac{\text{Various components of capital}}{\text{Various measures*}}$
Monetary reserve requirement	$\frac{\text{Reserves held at central bank}}{\text{Specified deposit liabilities}}$
Liquid asset requirement	$\frac{\text{Approved "readily marketable" securities}}{\text{Specified deposit liabilities}}$
Net interest margin	$\frac{\text{Net interest income}}{\text{Total interest-earning assets}}$

Various measures* such as market risk, risk-weighted assets, or level of operational risk assumed

Retail Ratios

Comparable (or same) store sales	$\frac{\text{Average revenue growth year over year for stores open in both periods}}{\text{Revenue}}$
Sales per square meter (or square foot)	$\frac{\text{Revenue}}{\text{Total retail space in square meters (feet)}}$

Service Industry Ratios

Revenue per employee	$\frac{\text{Revenue}}{\text{Total number of employees}}$
Net income per employee	$\frac{\text{Net income}}{\text{Total number of employees}}$

Hotel Industry Ratios

Average daily rate	$\frac{\text{Revenue}}{\text{Number of rooms sold}}$
Occupancy rate	$\frac{\text{Number of rooms sold}}{\text{Number of rooms available}}$

Relationship or Subscription-based Firms Ratios

Average revenue per user (ARPU)	$\frac{\text{Revenue}}{\text{Average number of users or subscribers}}$
---------------------------------	--

Question

What do liquidity and cash reserve ratios primarily indicate in the banking sector?

- A. Liquidity and cash reserve ratios reflect the efficiency of loan origination and credit risk assessment.
- B. Liquidity and cash reserve ratios provide insights into a bank's liquidity and compliance with monetary and regulatory requirements.
- C. Liquidity and cash reserve ratios measure a bank's profitability and return on equity.

Solution

B is correct. Liquidity and cash reserve ratios in the banking sector primarily indicate a bank's liquidity position and adherence to monetary and regulatory requirements. These ratios assess the bank's ability to meet short-term obligations and maintain financial stability.

LOS 11f: describe how ratio analysis and other techniques can be used to model and forecast earnings

Analysts often need to forecast future financial performance, such as EPS forecasts and equity valuations. This process involves using data about the economy, industry, and company alongside the results of financial analyses like common-size and ratio analyses and the judgment of analysts.

Analysts can build models based on growth forecasts and expected relationships among financial statement data to forecast future performance. This involves creating budgets and pro forma financial statements, which are particularly useful for senior executives and boards of directors. These forecasts are also crucial for presentations to credit analysts and in securing external financing.

Modeling and Forecasting Earnings

Forecasting usually involves a range of possibilities, and several techniques may be utilized for this purpose. Various techniques can be used for this purpose:

- **Sensitivity Analysis:** Also known as "what if" analysis, sensitivity analysis shows the range of possible outcomes as specific assumptions are changed. This can influence financing needs or investment in fixed assets.
- **Scenario Analysis:** This analysis shows the changes in key financial quantities resulting from specific events, such as the loss of customers or a catastrophic event. If the events are mutually exclusive and exhaustive, and probabilities can be assigned, the analyst can evaluate the range of outcomes and standard statistical measures like the mean and median values.
- **Simulation:** This involves computer-generated sensitivity or scenario analysis based on probability models for the factors driving outcomes. Each possible outcome is assigned a probability, and multiple scenarios are run to determine an expected outcome for each variable.

Question 1

Which of the following statements is the *least* accurate?

- A. Forecasts should be limited to a single-point estimate.
- B. Scenario analysis shows the change in key financial quantities that may result from given (economic) events.
- C. Financial analysis, analyst judgment, and analysis of other information are all integral to the development of forecasts.

Solution

The correct answer is A.

Forecasts should not be limited to a single-point estimate. Instead, they should focus on a range of possibilities.

Both options, B and C, are accurate statements.

Question 2

Sensitivity analysis:

- A. Shows the results of the change of key financial quantities.
- B. Makes estimations of how future financial statements should look like.
- C. Shows the range of possible outcomes as specific assumptions are changed.

Solution

The correct answer is C.

Sensitivity analysis shows a range of possible outcomes as specific assumptions are changed.

Learning Module 12: Introduction to Financial Statement Modeling

LOS 12a: demonstrate the development of a sales-based pro forma company model

A sales-based proforma company model helps in forecasting a company's financial performance based on **predicted future sales**. This model plays a crucial role in strategic planning, providing insights for making informed business decisions. It uses various assumptions regarding sales growth and related costs and is essential for capital budgeting, financial planning, and for assessing the impact of different operational strategies.

Steps to Develop a Sales-Based Proforma Company Model

Step 1: Estimate Revenue Growth and Future Revenue

Begin by estimating the revenue growth and future revenue for the company. Analyze the historical data to understand the past growth trends. Consider the market growth, market share, or growth relative to GDP to make an accurate projection. For instance, if the historical growth is 5% and the market is expected to grow by an additional 10%, adjust the future revenue projections to reflect these factors.

Step 2: Estimate COGS (Cost of Goods Sold)

Next, project the COGS based on a set percentage of sales or utilize a more detailed approach that considers the business strategy and competitive environment. If there are anticipated changes in the supply chain or production costs, adjust the projections accordingly. For example, if the sales are projected to be \$1 million and historical COGS is 60% of sales, estimate the COGS at \$600,000.

Step 3: Estimate SG&A (Selling, General and Administrative Expenses)

In this step, determine whether SG&A will be fixed or grow with revenue. Utilize historical data and trends to inform this projection. For instance, if SG&A historically grows at a similar rate to revenue, apply this trend to future projections to estimate the SG&A expenses.

Step 4: Estimate Financing Costs

Estimate the financing costs by considering current interest rates and debt levels. Consider any anticipated changes in capital expenditures or financial structure that may impact the financing costs. For example, if the company is planning a significant capital expenditure, factor in the increased financing costs related to the additional debt.

Step 5: Estimate Income Tax Expense and Cash Taxes

For estimating income tax expense and cash taxes, apply the historical effective tax rates to the income projections. Consider different tax jurisdictions and anticipated growth in high- and low-tax segments, and adjust for any changes in deferred tax items. For example, if the effective tax rate has been 20%, apply this rate to the pre-tax income projections.

Step 6: Model the Balance Sheet

Project the working capital accounts based on the items that flow from the proforma income statement. Ensure that the current assets and liabilities align with the projected revenue and expenses. For instance, if revenue is projected to increase, account for corresponding increases in accounts receivable and inventory in the balance sheet.

Step 7: Estimate Capital Expenditures and Net PP&E

To estimate capital expenditures and net PP&E, project both depreciation and capital expenditures, considering both maintenance and growth. Utilize these estimates to project net property, plant, and equipment (PP&E) for the balance sheet. For instance, if planning to purchase new equipment, increase the capital expenditure projections and update the net PP&E accordingly.

Step 8: Construct a Proforma Cash Flow Statement

Finally, use the completed pro forma income statement and balance sheet to construct the pro forma cash flow statement. Ensure all cash inflows and outflows are accounted for, aligning with the projected operations, financing, and investing activities. Utilize the net income from the proforma income statement, adjust for non-cash expenses, and account for changes in working capital to project the cash flows from operations.

Question

XYZ Inc., a growing technology company, is preparing a sales-based proforma model to forecast its financial position for the next year. The firm has consistently shown a revenue growth of 8% over the past five years. The company's Cost of Goods Sold (COGS) has been around 45% of the sales. The expected operating expenses, including Selling, General, and administrative expenses (SG&A), are estimated to grow at 2% annually. The management plans to make substantial capital expenditures in the upcoming year due to expansion. The company also anticipates changes in the financial structure, which will affect its financing costs.

As a financial analyst, which of the following steps would be the most crucial in ensuring the accuracy and reliability of the proforma model for XYZ Inc.?

- A. Keeping the COGS and SG&A expenses fixed based on historical data.
- B. Focusing primarily on estimating revenue growth.
- C. Giving due consideration to anticipated changes in capital expenditures and financial structure.

Solution

The correct answer is C.

In the development of a proforma model, all aspects, like revenue growth, COGS, and operating expenses, are crucial. However, for XYZ Inc., which anticipates significant capital expenditures and changes in financial structure, giving due emphasis to these aspects is paramount. Estimating the impact of these changes on financing costs and other related elements is essential to ensure the proforma model's accuracy.

A is incorrect. Relying strictly on historical data for COGS and SG&A without accounting for the projected growth and changes in the company's operations may lead to inaccurate projections. These figures are likely to change with the anticipated capital expenditure and alterations in financial structure.

B is incorrect. While revenue growth estimation is vital, focusing solely on it could overlook other significant aspects like changes in capital expenditures and financial structure, which XYZ Inc. anticipates. Proper attention to these elements is crucial for a balanced and reliable proforma model.

LOS 12b: explain how behavioral factors affect analyst forecasts and recommend remedial actions for analyst biases

Financial statement models are not immune to behavioral biases. Analysts must be aware of the impact of behavioral biases and solutions to improve investment decisions and forecasts. The five key behavioral biases are overconfidence, conservatism, confirmation bias, the illusion of control, and representativeness.

Overconfidence

Overconfidence is a behavioral bias where analysts may overestimate their ability to forecast accurately. An analyst might place excessive trust in their financial analysis models, neglecting to consider potential external factors that can drastically affect a company's performance. This misplaced confidence can lead to inaccurate and unreliable predictions, potentially causing substantial financial misjudgments. To counteract overconfidence, analysts should routinely compare their forecasts with actual outcomes and adjust their models and assumptions accordingly. Embracing feedback and critiques can also help in ensuring diverse perspectives inform their analysis.

Conservatism

Conservatism bias can result in analysts being excessively cautious in their forecasts. They might be slow in updating their forecasts with new and relevant information, leading to predictions based on outdated or incomplete data. For example, an analyst may hesitate to update an earnings estimate despite significant market shifts, leading to forecast inaccuracy. A systematic and timely review and integration of new data into forecast models can help alleviate conservatism bias, ensuring predictions remain relevant and informed.

Confirmation Bias

Confirmation bias sees analysts focusing on information that confirms their existing beliefs while ignoring data that contradicts them. An analyst might unconsciously give more weight to positive information about a company they favor, overlooking potential red flags or negative data. This selective attention can lead to biased and skewed forecasts. Actively seeking diverse sources of information and opinions can help mitigate this bias, ensuring a more balanced and objective analysis.

Illusion of Control

The illusion of control bias involves analysts believing they have more control over events and outcomes than they actually do. For instance, they might assume that their thorough analysis can accurately predict stock price movements, ignoring other uncontrollable, impacting factors. Acknowledging the inherent uncertainties in forecasting and employing varied analytical approaches, like scenario analysis, can help counter this bias, leading to more realistic and reliable predictions.

Representativeness

Representativeness bias can cause analysts to incorrectly assess the relevance of certain information, considering it more indicative of future events than it truly is. An analyst might wrongfully assume a company's past performance is a reliable indicator of its future success, leading to potential forecasting errors. Ensuring a comprehensive and diverse range of factors and data sources inform analysis can help overcome this bias, fostering more robust and accurate financial forecasts.

Question

Sophia, a financial analyst, has been closely monitoring the growth of a start-up tech company, TechGrowth Inc. The firm has experienced consistent revenue growth over the past five years, leading many analysts to predict a continuation of this trend. Despite a recent report highlighting potential legal issues that could affect TechGrowth Inc.'s operations, Sophia is convinced the company's revenue will continue to grow unimpeded. She bases her projection on the company's past performance, assuming it will consistently replicate its success in the future.

Which of the following biases is Sophia **most likely** exhibiting in her analysis?

- A. Representativeness Bias
- B. Conservatism Bias
- C. Illusion of Control Bias

Solution

The correct answer is A.

Sophia exhibits representativeness bias. This bias occurs when individuals unjustly categorize new information based on past experiences or classifications, often leading to base rate neglect. Sophia's assumption that TechGrowth Inc. will persistently replicate its past success in the future, despite new information about potential legal issues, is a manifestation of this bias. She erroneously believes that the firm's future growth will mirror its past growth based on the pattern observed in the previous years.

B is incorrect. Conservatism bias involves the reluctance to revise one's belief upon receiving new information. Although it might appear that Sophia is ignoring the report about potential legal issues, her decision is based on the perceived relevance of past performance to future growth rather than an unwillingness to adjust her predictions in light of new information, making representativeness bias a more

accurate characterization of her behavior.

C is incorrect. The illusion of control bias would entail Sophia believing that she can influence or control outcomes that are actually beyond her control. In this scenario, Sophia is not attempting to control the outcomes; rather, she is making a predictive error based on past performance, aligning more with representativeness bias.

LOS 12c: explain how the competitive position of a company based on Porter's five forces analysis affects prices and costs

In analyzing a company's competitive position, Porter's Five Forces framework is a valuable tool. This model evaluates the influence of five key industry factors: competitive rivalry, threat of new entrants, bargaining power of suppliers, bargaining power of buyers, and the threat of substitutes on prices and costs. By understanding these forces, businesses can strategize effectively to optimize their profitability and market standing. Each force brings unique challenges and influences that can significantly affect a company's pricing and cost structure.

Competitive Rivalry

High competition among industry rivals leads to significant pricing pressures. Companies frequently lower prices to attract customers in a crowded market, diminishing the profit margins. Moreover, the need to stand out in the competition escalates costs due to necessary investments in marketing, innovation, and product differentiation. For instance, the smartphone industry experiences this phenomenon. Brands like Apple and Samsung often engage in pricing wars while concurrently spending substantially on research, development, and marketing to distinguish their products and features.

Threat of New Entrants

The threat of new entrants in the industry further exerts pressure on established companies. The entry of new competitors can lead to reduced prices and increased marketing spending to retain market share, further impacting the profitability of existing companies. Consider the airline industry; the emergence of low-cost carriers compelled established full-service airlines to reevaluate their pricing models, often leading to the introduction of more competitive fares to retain market share.

Bargaining Power of Suppliers

Additionally, the bargaining power of suppliers plays a critical role in determining a company's costs. Suppliers with considerable power can command higher prices for raw materials or services. This increase in input costs is often passed on to the customers in the form of higher prices, impacting the demand. For example, a unique computer hardware manufacturer might charge a high price and force computer companies to elevate their product prices, possibly reducing demand.

Bargaining Power of Buyers

On the other side, the bargaining power of buyers significantly impacts a company's pricing strategy. When buyers, especially large retail chains, hold substantial power, they can demand lower prices, forcing companies to reduce their prices and impacting their overall profitability. For example, retail giants like Walmart can effectively negotiate for lower prices from suppliers, who then might have to cut their prices, negatively impacting their profit margins.

Threat of Substitutes

Lastly, the threat of substitute products also affects a company's pricing and innovation strategies. Companies are compelled to keep their prices competitive and continually innovate to ensure customer loyalty. The rise of plant-based meat alternatives serves as an illustrative example. Traditional meat producers now face the challenge of retaining customers, leading to necessary innovation and reconsideration of pricing strategies.

In conclusion, a robust understanding of the dynamics outlined in Porter's Five Forces analysis is crucial for companies to navigate the complexities of industry competition, pricing pressures, and cost influences. Each force presents distinct challenges and opportunities, making it essential for businesses to continually evaluate and adjust their strategies for sustained competitiveness and profitability.

Question

A company operates in an industry with high competitive rivalry and strong bargaining power of buyers. This firm is also facing a significant threat from substitute products. Given this situation, the company is considering two options: one is to differentiate its products, and the other is to cut prices.

Based on Porter's Five Forces analysis, which of the following is the ***most likely*** outcome if the company decides to lower its prices?

- A. The company will enhance its market share significantly with little impact on profitability.
- B. The company will reduce its profitability while not substantially improving its competitive position.
- C. The company will strengthen its competitive position by effectively countering the threat from substitutes.

Solution

The correct answer is B.

In an industry marked by high competitive rivalry and significant bargaining power among buyers, lowering prices may not significantly enhance market share as competitors may quickly follow with price cuts of their own. This strategy could further erode profitability without substantially enhancing the firm's competitive standing.

A is incorrect. Given the intense competitive rivalry and strong bargaining power of buyers, a price reduction might be quickly matched by competitors, leading to little or no gain in market share while profitability is impacted.

C is incorrect. Lowering prices is not an effective strategy to counter the threat from substitutes. Differentiation, by contrast, would be a more effective approach to mitigate the risk of substitution as it emphasizes unique product features or brand

appeal that substitutes might lack.

LOS 12d: explain how to forecast industry and company sales and costs when they are subject to price inflation or deflation

The process of forecasting industry and company sales amidst inflation or deflation is intricate and essential. The shifting tides of economies impact industries and individual companies, affecting sales volumes, prices, and costs. It is vital for analysts to adeptly understand and navigate these complexities to ensure accurate and reliable sales forecasts. We delve deeply into understanding these scenarios, focusing on essential aspects such as input costs, pricing strategies, and their potential impact on sales and revenues.

Industry Sales in an Inflation Scenario

During inflation, the rise in general price levels can affect the demand for various products and services, causing potential shifts in industry sales. One of the essential components to consider here is the input costs, which can vary significantly across industries. Examples include the cost of jet fuel for airlines, grain costs for cereal and baking companies, and coffee bean costs for coffee shops. These variable costs can notably affect earnings, impacting an industry's forecasted sales figures. It's crucial to analyze how changes in these costs could potentially be passed on to customers and the expected effect of such price increments on sales volume and revenue.

For instance, an industry heavily reliant on a specific raw material, the price of which has surged, might face increased production costs. If these costs are transferred to the end consumer, the industry may witness a drop in sales volume, reflecting the inverse relationship between price and demand.

Company Sales in an Inflation Scenario

Inflation also has direct implications for individual company sales forecasts. Companies exposed to significant commodity-type inputs could implement hedging strategies through derivatives or fixed-price contracts to mitigate the impact of rising input prices on costs and earnings. This

hedging can delay the effect of input price changes, allowing the company more time to adjust and strategize.

Companies that are not hedging and are not vertically integrated face challenges. Analysts must determine how swiftly and to what extent a cost increase can be passed on to customers. The strategy a company adopts in response to inflation, such as switching to substitute inputs or delaying price increases to gain market share, plays a crucial role in forecasting its sales.

For example, a company might choose to absorb the increased costs temporarily to maintain its customer base and sales volume, anticipating that the inflation is a short-term scenario. This action would affect the profit margins but could potentially safeguard the company's market share and sales volume, impacting the overall sales forecast.

The nuanced understanding of these facets, considering the unique industry and company characteristics, is imperative for creating a comprehensive and accurate sales forecast in an inflationary environment.

Industry Sales in a Deflation Scenario

In a deflationary environment, the general decline in price levels might increase the purchasing power of consumers, potentially leading to a surge in demand for various products and services. However, companies may not always be prepared to meet this increased demand, leading to supply shortages and other operational challenges. Understanding these dynamics is crucial for accurately forecasting industry sales in a deflation scenario. In such an environment, companies might be hesitant to lower prices further despite decreased costs, as this could lead to a price war and further diminish industry revenues. Companies might hold prices steady, betting on increased volume to drive revenue growth.

For instance, if companies reduce prices and see a proportional increase in sales, revenue remains steady, but it's a delicate balance. If the price reduction does not increase sales, revenues and profits could plummet, adversely impacting the entire industry. Analyzing the industry's historical price elasticity of demand can provide valuable insights for making accurate sales forecasts in a deflationary scenario.

Company Sales in a Deflation Scenario

When it comes to forecasting company sales in a deflationary context, a detailed examination of the firm's pricing strategy, cost structure, and potential operational adjustments is essential. Companies might adopt various strategies to maintain or enhance their revenue and profitability. Some might focus on enhancing operational efficiency to lower costs further, allowing them to maintain profitability even with lower sales prices. Others might opt to diversify their product offerings or explore new markets to offset the decline in revenue from existing products or markets.

An example here is a company facing deflation in its home market. Even if the company does not lower its prices, the general price decline might lead consumers to expect lower prices, which, if not met, could result in reduced sales volume. The firm may explore other markets where deflation is not a concern, maintaining its pricing structure and potentially offsetting losses in its home market.

Industry Costs in an Inflation Scenario

In an inflationary environment, forecasting industry costs is crucial. Input costs such as raw materials, energy, and labor significantly influence the industry's overall pricing strategy and profitability. In an inflation scenario, businesses should consider various strategic approaches to mitigate the impact. Companies dealing with commodity-type inputs could employ strategies like hedging their exposure to price changes or utilizing fixed-price contracts for future deliveries. This approach can help offset the short-term impact of inflation on input costs, providing companies with additional time to adjust their strategies to manage long-term inflationary pressures.

Consider the airline industry, where oil price surges can significantly elevate operational costs. Airlines might implement hedging strategies to secure current fuel prices, mitigating their risk against future inflation in fuel costs.

Company Costs in an Inflation Scenario

For a specific company facing inflation, cost forecasting necessitates a comprehensive exploration of the firm's operational and financial details. The company's approach to managing and offsetting cost increases is pivotal. Firms may attempt to transfer the augmented costs to customers, but this move is contingent on the demand elasticity for their products. If the demand is elastic, a price hike could lead to a substantial decline in sales volume, ultimately diminishing total revenue. Scrutinizing a company's historical pricing strategies, cost management techniques, and demand elasticity provides valuable insights into its potential cost management in an inflationary context.

For example, a bakery grappling with escalating grain prices might find it challenging to relay the increased costs to consumers due to the availability of substitute products. The company might explore operational efficiencies, diversify product lines, or investigate alternative, cost-effective ingredients to maintain its cost structure.

Forecasting Industry Costs in a Deflation Scenario

In a deflationary scenario, the cost structure of industries is affected differently. The prices of goods and services, including input costs, generally decrease. The challenge for industries lies in maintaining operational efficiencies and profitability when prices and revenue are declining. Industries must evaluate their fixed and variable costs and explore opportunities to renegotiate contracts, especially for commodity inputs that constitute a significant proportion of operational costs. Additionally, industries need to assess their production processes, ensuring they are as efficient as possible to counterbalance lower revenue streams with lower operational costs.

Let's look at an example. In a deflation scenario, a coffee shop chain might experience a decrease in the cost of coffee beans. While it could benefit from lower input costs, it's crucial to assess whether the price decline leads to increased competition and downward pressure on the prices they can charge consumers, possibly offsetting the advantage of lower costs.

Forecasting Company Costs in a Deflation Scenario

Strategic planning for cost forecasting is essential when a specific company is navigating a deflationary context. The firm should assess its supply chain, contractual obligations, and production efficiencies to optimize costs for the lower revenue environment. A detailed review of fixed and variable costs allows companies to identify potential areas for cost reduction or renegotiation, ensuring financial sustainability despite decreased pricing power and revenue.

Consider a manufacturing company during deflation. It might see a decline in the cost of raw materials. The company needs to scrutinize its other operational costs, ensuring they are streamlined to offset reduced revenue from lower product prices. It could renegotiate supplier contracts or optimize production processes to further reduce costs, ensuring financial stability in a deflationary environment.

Question

Which of the following is *most likely* a reason for a product's demand to be negatively affected by an increase in price?

- A. Inflation
- B. Price elasticity of demand
- C. Exporting

Solution

The correct answer is B.

Price elasticity of demand measures the responsiveness of the quantity demanded of a good to a change in its price. When the demand for a product is elastic, a price increase will lead to a more than proportionate reduction in the quantity demanded, thus negatively affecting the demand. Consumers may opt for alternative goods or decide not to purchase the product at all, leading to a significant drop in sales volume.

A is incorrect. Inflation can lead to an increase in prices, but it does not specifically measure the responsiveness of demand to a change in price. The demand may or may not be significantly affected by inflation, depending on various other factors, including the elasticity of demand for the particular good.

C is incorrect. Exporting involves selling goods to other countries, and while it may be influenced by changes in price, it is not a measure of the responsiveness of demand to price changes. Exporting decisions are influenced by various factors, including exchange rates, global demand, and tariffs, and may not directly correlate with the price elasticity of demand for a particular good.

LOS 12e: explain considerations in the choice of an explicit forecast horizon and an analyst's choices in developing projections beyond the short-term forecast horizon

The forecast time horizon is influenced by the following:

- **The investment strategy being considered:** Professionally managed equity investments have an investment timeframe or the average holding period for a stock, corresponding with the average annual portfolio turnover.
- **The cyclical nature of the industry:** The forecast period should be long enough to allow the business to reflect average mid-cycle levels of revenue and profits.
- **Company-specific factors:** For example, acquisitions or restructuring activities. The effects of these factors need to be included in the forecasts.
- **The analyst's employer's preference:** If the employer requires the use of a dividend discount model and the company under evaluation does not currently pay dividends because it is not profitable, the analyst forecasts need to include a period where the company becomes profitable and pays dividends.

Longer-term projections often represent normalized earnings better than short-term forecasts when there are temporary items. Normalized earnings reflect mid-cycle earnings for a firm after excluding any unusual or temporary factors.

After forecasting for the forecast period, analysts estimate the terminal value based on long-term projections.

When using the **historical multiples-based approach** to estimate the terminal value of a company, the analyst assumes that the past is a good reflection of future expectations regarding growth expectations and required rates of return. The choice of the multiple should be consistent with the long-run expectations for growth and required return. Analysts use the historical average multiple as the basis for the target multiple when calculating the terminal value. Historical multiples are only relevant to the extent that future growth and profitability are expected to resemble the past. If the future is expected to be different from the past, a premium

or discount is applied to the historical multiple to reflect the difference in growth or profitability.

When using a **DCF approach**, an analyst should consider whether the terminal cash flow will persist in the future. If it is not expected to persist in the future, an adjustment should be made to the terminal cash flow. Additionally, analysts should consider whether the future long-term growth rate will differ from the historical growth rate.

Challenges in Long-Term Forecasting

A significant challenge in forecasting beyond the short-term forecast horizon is anticipating **inflection points** when the future looks different from the past. The discount cash flow model relies on perpetuity calculation, assuming that the previous period's cash flows grow at a constant rate forever. For this reason, the cash flow must be normalized.

Long-term growth is a key input in the perpetuity calculation. Some companies and industries can grow faster than the overall economy for long periods. However, long-term forecasting comes with the challenge of anticipating inflection points, where the future will significantly differ from the recent past. Sources of such differences include economic disruption, changes in the business cycle stage, government regulation, and technology.

Question

Which of the following is the *least likely* an approach for forecasting the terminal value?

- A. Historical multiples-based approach.
- B. DCF approach.
- C. Inflection points.

Solution

The correct answer is C.

Inflection points are not an approach to forecasting the terminal value. These are points when the future looks different from the past.

B is incorrect. The DCF approach is one of the ways an analyst would use to estimate the terminal value. Under the DCF approach, an analyst considers whether the terminal cash flow and the future long-term growth rate will persist.

A is incorrect. The historical multiples-based approach is used to estimate the terminal value. Analysts use the historical average multiple as the basis for the target multiple when calculating the terminal value. Historical multiples are only relevant to the extent that future growth and profitability are expected to resemble the past.