Financial Statement Analysis

Learning Module 1 Introduction to Financial Statement Analysis

LOS: Describe the steps in the financial statement analysis framework.

LOS: Describe the roles of financial statement analysis.

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

LOS: Describe implications for financial analysis of alternative financial reporting systems and the importance of monitoring developments in financial reporting standards.

LOS: Describe information sources that analysts use in financial statement analysis besides annual and interim financial reports.

Financial statements are prepared by a company to provide information about the company's financial performance, financial position, and changes in financial position. A company's performance can be examined for its past ability to generate profits and cash flow, and for forecasts of future performance and ability to meet obligations. These assessments are frequently performed prior to investing in the company's debt or equity, offering any credit facilities, or making other economic decisions related to the company.

Financial Statement Analysis Framework

LOS: Describe the steps in the financial statement analysis framework.

A generic framework for analysts to consider when performing financial statement analysis involves the following steps:

Exhibit 1 Financial analysis framework

Phase	Action	Result
Articulate purpose	• Articulate purpose of analysis • Determine the audience	• Written objective of analysis • Nature of reporting
Collect data	• Obtain financial data • Visit company	• Organized financial statements • Insight into goals and operations

Phase	Action	Result
Process data	• Adjust numbers • Calculate data	• Adjusted financial statements • Common-sized statements • Financial ratios and forecasts
Analyze/interpret data	• Understand the processed data	• Analyst's report
Develop recommendation	• Plot course of action	• Recommendation report
Follow-up	• Repeat analysis as data changes	• Reissue analysis and reports

Articulate the Purpose and Context of the Analysis

This step formulates the questions the analyst is looking to answer. The definition of the purpose will determine the approach, tools, data sources, and the format used to present results.

The purpose may be clearly defined by institutional norms, such as a routine periodic review of financial statements where credit quality or equity performance is reviewed on a quarterly or monthly basis. Routine tasks often involve updating previous analysis with new information and presenting in a similar format. While this can sound simple, the routine nature can sometimes lead the analyst into complacency, missing a key trend or failing to consider other data points or influencing factors.

Other analytical tasks require more discretion on the part of the analyst to articulate the purpose. The analyst must define the context of the analysis, which requires understanding the audience, the time frame, and the resources available to complete the analysis.

Context must also be considered: the intended audience, expected reporting of the findings, time frame, and available resources must be considered. The complexity of these issues will vary between projects; routine analysis will have these contextual points well established, while newer projects may need more consideration.

Collect Data

Once the purpose and the context of the analysis are defined, the analyst needs to collect information to begin the analysis. Depending on the scope of the analysis, the analyst may need only financial statement data on a single company or a group of companies for comparison.

However, a more thorough analysis may be needed to understand a company's financial performance and position relative to its industry. This added step would require collecting industry and market data to better understand the company's operating environment. This data allows the analyst to consider whether the company's performance resulted from factors within or beyond the company's control.

Process Data

At this stage, the analyst processes the data. The collected financial information can be converted into ratios, growth rates, common-size financial statements, charts, regressions, or simulations to be analyzed and interpreted within the scope of the analysis.

This step may also include reading the financial statements of the companies being analyzed to form an understanding of factors such as business models, accounting policies, and tax jurisdictions and to evaluate how these factors will affect comparability between the assets.

With an understanding of these factors, the analyst may make any needed adjustments to bring the financial statements more in line for comparison. Common considerations are depreciation methods or decisions to capitalize or expense certain assets, but other factors, such as differing fiscal year ends, may also impede comparison.

Analyze/Interpret the Data

At this stage, the analyst takes the processed data and interprets it in the context of the original question. The answer is rarely clear from the numbers alone and requires critical thinking to arrive at a conclusion or recommendation. For example, the analyst may have to look at an earnings forecast in the broader market context to recommend a buy, sell, or hold rating on the equity of a particular company.

Develop and Communicate Conclusions and Recommendations

The analyst must organize and communicate findings in an appropriate format. The format and the contents of the findings may be defined by institutional standards, the audience, or regulatory authorities. This is a critical step since the report must clearly articulate the findings of the analysis to the intended audience. Routine analyses, such as an equity analysis report or a performance update, may use a predefined format. A typical framework for an equity analysis report would include:

- Summary and investment conclusion
- Industry overview and competitive analysis
- Financial statement model, potentially with several scenarios
- Valuation
- Investment risks

Formats can also be defined by regulators or professional standards. The CFA's *Standards of Practice Handbook* outlines standards that must be met, such as clearly defining the difference between opinion and fact in an analysis as well as presenting basic facts to allow the reader to make his or her own decisions.

Follow Up

Financial statement analysis does not end with the presentation of the initial analysis. When equity investment or a credit rating is analyzed, periodic reviews may be required to determine whether estimates and forecasts made in the initial analysis are still in line with the analyst's thesis.

Scope of Financial Statement Analysis

LOS: Describe the roles of financial statement analysis.

Financial statement analysis is used to assess a company's past performance and evaluate its future prospects using financial reports and other relevant company information. Financial statements, financial notes, and supplementary schedules, as well as a variety of other information sources, are studied closely in the financial analysis of a company.

Financial statement analysis is used to make decisions such as the following:

- Evaluating an equity investment for inclusion in a portfolio
- Valuing a security for making an investment recommendation to others
- Determining the creditworthiness of a company to decide whether to extend a loan to the company, and if so, what terms to offer
- Assigning a debt rating to a company or bond issue
- Deciding whether to make a venture capital or other private equity investment
- Evaluating a merger or acquisition candidate

A company's performance can be examined through its ability to generate profits from core business activities (ie, profitability) and its ability to generate cash receipts in excess of cash payments (ie, cash flow). While much information can be gained from past performance, analysts are generally looking to assess the company's future. Therefore, forecasts of future cash flows are key to determining the company's ability to meet its obligations.

Financial statement analysis can also be used to determine a company's liquidity, or its ability to meet short-term obligations, and its solvency, or its ability to meet long-term obligations.

Regulated Sources of Information

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

Global regulatory authorities require publicly traded companies to prepare financial statements that meet specific accounting standards and are in accordance with securities rules and regulations. Jurisdictions under which a company's securities trade may approach these regulations differently; however, 95% of the world's financial markets belong to the International Organization of Securities Commissions (IOSCO), sharing similar objectives and principles and creating a degree of global uniformity.

International Organization of Securities Commissions

IOSCO is not a regulatory authority, but its 115 members regulate a large portion of the world's financial capital markets. IOSCO sets out three core objectives of securities regulation:

- Protect investors
- Ensure markets are fair, efficient, and transparent
- Reduce systematic risk

IOSCO's principles are grouped into 10 categories, including principles for regulators, enforcement, issuers, and auditors. Two of these principles directed at issuers relate to financial reporting:

- There should be full, accurate, and timely disclosure of financial results, risk, and other information that is material to investors' decisions.
- Accounting standards used by issuers to prepare financial statements should be of a high and internationally acceptable quality.

With increasing globalization, the organization aims to assist its members in developing internationally comparable financial reporting standards. IOSCO also assists in attaining uniform regulation and cross-border cooperation in combating violations of securities and derivatives laws. Finally, it provides guidance for self-regulatory organizations (SROs) in overseeing their respective areas of expertise.

US Securities and Exchange Commission

The US Securities and Exchange Commission (SEC) regulates capital markets in the US. Any company issuing securities on a US-listed exchange, such as the New York Stock Exchange or the NASDAQ, falls under its jurisdiction and must adhere to its rules and regulations. The US SEC was commissioned to reform the US securities market following the stock market crash of 1929. Since then, it has created several statutes that impact financial reporting, including:

- Securities Act of 1933 (the 1933 Act): This law specifies the financial and other significant information that investors must receive when securities are sold; it also prohibits misrepresentations and requires initial registration of all public issuances of securities.

- Securities Exchange Act of 1934 (the 1934 Act): This law created the SEC, gave the SEC authority over all aspects of the securities industry, and empowered the SEC to require periodic reporting by companies with publicly traded securities.
- Sarbanes-Oxley Act of 2002: This law created the Public Company Accounting Oversight Board (PCAOB) to oversee auditors. The SEC is responsible for carrying out the requirements of the act and overseeing the PCAOB. The act addresses auditor independence, prohibits auditors from providing certain nonaudit services to the companies they audit, and strengthens corporate responsibility for financial reports by requiring executive management to certify that the company's financial reports fairly present the company's condition. The act also requires management to report on the effectiveness of the company's internal control over financial reporting, including obtaining external auditor confirmation of the effectiveness of internal control.

Companies file standardized forms to comply with these acts and also reply to comments made by the SEC on their forms. More than 50 forms currently exist to meet reporting requirements, although all may not apply to an individual company. An analyst can find these electronically submitted forms on several websites, including the company's investor relations page and the SEC's EDGAR website. The most common filings an analyst will use include:

- **Securities Offerings Registration Statement:** This form must be filed by all companies that issue new securities. This includes both companies issuing securities for the first time and those that registered prior to this issue. Required information includes disclosures about the securities, the relationship of these new securities to the issuer's other capital securities, the information typically provided in annual filings, recent audited financial statements, and risk factors involved in the business.
- **Forms 10-K (US registrants), 40-F (Canadian registrants), and 20-F (other non-US registrants):** On these forms, companies annually provide a comprehensive business overview and disclose important financial data such as a historical overview of performance, a management discussion & analysis (MD&A) report, and audited financial statements. The company must also disclose certain risk factors pertaining to its business, any current legal proceedings, and information on the firm's management.
- **Forms 10-Q and 6-K:** US companies file form 10-Q quarterly, while non-US firms file form 6-K semiannually. These submissions require unaudited financial statements, MD&A reports, and disclosure of any nonrecurring events.
- **Proxy Statement/Form DEF-14A:** The SEC requires that proxy statements filed as Form DEF-14A be sent to shareholders prior to any shareholder meeting. A proxy is an authorization from shareholders granting another party the right to vote on their behalf on company matters, such as board member elections. The following information is contained in a proxy statement:
  - Details of proposals that require shareholder vote
  - Ownership stakes of senior management and principal owners
  - Director biographies
  - Executive compensation disclosures
- **Form 8-K:** This form must be filed to announce significant events, including the acquisition or disposal of corporate assets, changes in management or corporate governance, changes in securities and trading markets, and matters related to accountants and financial statements. Foreign issuers file Form 6-K with the US SEC.
- **Form 144:** This form is filed to announce a possible sale of restricted securities, or the sale of securities held by affiliates of the issuer.
- **Forms 3, 4, and 5:** These forms are used to examine beneficial purchases and sales of securities by management, directors, employees, and other affiliates of the company. Beneficial owners who own more than 10% of the company's stock must also be announced.
- **Form 11-K:** This form reports annual activity of employee stock purchases, savings, and other plans the company sponsors, such as defined benefit and defined contribution plans.

Capital Markets Regulation in Europe

Each EU member state regulates its own capital markets, although some securities regulations are adopted at the EU level to improve consistency across jurisdictions. Since 2005, EU-listed companies have used IFRS for consolidated accounts. Newly issued IFRS must go through an EU endorsement process involving the European Commission and related advisory and approval bodies. The ESC advises on securities policy, and ESMA helps coordinate supervision across EU markets. Despite this coordination, registration and reporting requirements still differ across member states.

Financial Notes and Supplementary Schedules

The financial notes and supplemental schedules add context to the information provided in the financial statements. These frequently constitute a large portion of the disclosures made in regulatory filings and are critical to understanding a company's financial data.

The notes contain information on accounting policies as well as the methods and estimates used in preparing the statements. These disclosures are necessary, given the amount of flexibility both IFRS and US GAAP allow to account for different businesses and industries. While this flexibility is needed to allow accounting policies to meet the needs of unique businesses, it can make comparison of information across companies more difficult for analysts.

The notes provide explanatory information about all or most line items on the balance sheet and income statement, including but not limited to:

- 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
- Subsequent events that occur after the statement date

Experience using the disclosures made by a company and its competitors typically enhances an analyst's judgment about the relative importance of different disclosures and the ways in which they can be helpful.

Business and Geographic Segment Reporting

For companies that operate different businesses, both IFRS and US GAAP require disaggregated information in the financial statement notes. Each of these businesses, or operating segments, is defined as a part of the company with:

- Revenue and/or expense generation, including start-up segments
- Regular review of results by the company's senior management
- Discrete and available financial information

Operating segments must be disclosed separately if they make up at least 10% of the company's revenue, assets, or profit (losses). Smaller operating segments can be combined if they share similarities that define a business or geographical segment or can be combined with similar significant reportable segments. Information about operating segments and businesses that are not reportable is combined in an "all other segments" category in the financial notes.

The factors used to identify reportable segments must be disclosed in the notes, as well as the types of products and services sold by each reportable segment. For each reportable operating segment, disclosures must include:

- Revenues, distinguished between revenue from external customers and revenue from other segments
- A measure of profit or loss
- A measure of assets and liabilities
- Interest revenue and interest expense
- Cost of property, plant and equipment and any acquired intangible assets
- Depreciation and amortization expense
- Other noncash expenses
- Income tax expense or income
- Share of the net profit or loss of an investment accounted for under the equity method

Additionally, the company must provide a reconciliation of the consolidated statements and the revenue, profit and losses, assets, and liabilities of the reportable segments.

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

Management discusses a variety of issues related to the business's performance in both annual and quarterly filings. Management uses this section to add context to the nature of the business and past results, as well as their views on the company's outlook.

MD&A can be very useful to the analyst but is also generally unaudited. In response to this, IFRS outline a framework for "Management Commentary" to provide guidelines for its presentation. This includes discussions on the nature of the business, management's objectives and strategies, the company's significant resources, risks, and relationships, as well as the results of operations and critical performance measures.

In the US, the SEC requires that management use the MD&A section to disclose any favorable or unfavorable trends that will affect the company's business, including any significant events that could impact its liquidity and resources. Management must also discuss the macroeconomic environment and other external uncertainties that will affect operations. Additionally, off-balance sheet obligations and contractual commitments must be disclosed in this section, as well as material accounting policies that involve subjective judgments.

This section is also an opportunity for management to discuss forward-looking activities like capital investments and growth plans that can help project future performance.

Auditor's Reports

Financial statement filings are required to be audited by an outside accounting firm. After reviewing the information in the filings, the auditor provides an opinion statement called the audit report. These can vary across jurisdictions, but all include a specific statement by the auditor on the accuracy of the filing.

International Standards on Auditing (ISA) have been developed by the International Auditing and Assurance Standards Board (IAASB). ISA are used in many countries outside of the US, which specifies its own auditing standards.

Regulators or stock exchanges can also require independent audit committees on company boards and provide a basis for auditors to give an opinion on the accuracy and presentation of the information in the filings within local accounting standards.

Independent auditors often use sampling techniques and understand that some line items may be based on estimates and assumptions. With this in mind, an auditor can give *reasonable assurance* that the statements are *fairly presented*. This assurance implies that there is a high probability the statements are free of material errors or fraud.

The auditor can give an unqualified or qualified opinion. An unqualified opinion states that the filings are presented in a "true and fair view" or are "fairly presented" in accordance with applicable accounting standards. A qualified opinion is one where there are limitations to the scope of the audit or some exceptions to the filings' meeting accounting standards.

In some cases, the auditor can give an adverse audit opinion, which indicates the filings are not presented fairly or otherwise diverge from accounting standards. If the auditor is not able to give an opinion, the auditor can issue a disclaimer of opinion.

In the report, the auditor must also give a basis for the opinion. These are called Key Audit Matters, or Critical Audit Matters in the US. These define the areas of the audit the auditor finds most important and identify issues that have higher risks for misstatement or require significant judgment on the part of management.

Under the Sarbanes-Oxley Act in the US, auditors must also express an opinion on the company's internal control systems. For publicly traded US companies, management is required by securities regulators to explicitly accept responsibility for the effectiveness of internal control, evaluate the effectiveness of internal control using suitable control criteria, support the evaluation with sufficient competent evidence, and provide a report on internal control.

Although these reports and attestations provide some assurances to analysts, they are not infallible. Analysts must always use a healthy degree of skepticism when analyzing financial statements.

Comparison of IFRS with Alternative Financial Reporting Systems

LOS: Describe implications for financial analysis of alternative financial reporting systems and the importance of monitoring developments in financial reporting standards.

The goal of the IFRS financial reporting system is to converge global accounting standards. This convergence makes comparing companies across jurisdictions far easier than if each country had its own standards. While IFRS are widely accepted across many markets, significant differences in global standards do exist. The most notable areas of incompatibility exist between IFRS and US GAAP since such a large portion of global companies report under one of these two sets of standards.

Efforts have been made to coordinate changes and converge the conceptual framework of the two sets of standards. The broader goal of converging both entirely was paused in the late 2000s; however, newly added standards have generally been made uniform.

Exhibit 2 Selected major differences between IFRS and US GAAP

Basis for comparison	US GAAP	IFRS
Developed by	Financial Accounting Standards Board (FASB)	International Accounting Standards Board (IASB)
Based on	Rules	Principles
Interest paid	Cash flows from operating activities	Cash flows from financing activities or cash flows from operating activities

Basis for comparison	US GAAP	IFRS
Inventory valuation	First in, first out (FIFO); last in, first out (LIFO); and weighted average method	FIFO and weighted average method
Development cost	Treated as an expense	Capitalized, only if certain conditions are satisfied
Reversal of inventory write-down	Prohibited	Permissible, if specified conditions are met

Companies are not required to reconcile one set of standards with another. As such, an analyst looking to compare companies across IFRS and US GAAP must be aware of the differences and understand that they might not have all the information they need to make adjustments to bring the comparisons more in line. This can cause a disconnect in comparing performance numbers across companies that use different standards, and auditors should be careful in establishing conclusions or valuations based on such imperfect comparisons.

Monitoring Developments in Financial Reporting Standards

Accounting standards are subject to change and further development. Analysts should be aware of these changes, which can impact security analysis and alter the valuation process.

New Products or Types of Transactions

In the securities industry, new products or new types of transactions can frequently arise where accounting standards offer no explicit guidance. These products or transactions are usually created to open a new line of business for a company or to mitigate certain risks but can also exist to attract customers to the business.

Analysts can learn more about these products or transactions in outside journals or monitor their activity in capital markets data to understand their economic value or business purpose. These items may be discussed in the financial reports, but it may be necessary to obtain more information directly from company management.

Evolving Standards and the Role of CFA Institute

It is important for the analyst to monitor changes made by regulatory authorities that affect the financial statements and to consider how these changes can impact valuations. Both the IASB and FASB clearly communicate new standards and proposals for future changes in standards on their websites. Both boards are also active in seeking input from the financial analyst community that regularly uses financial statements. When a new standard is proposed, an exposure draft is made available for financial statement users, who can offer comments or opinions to help evaluate the proposal. CFA Institute is also active in supporting improvements to financial reporting. Volunteer members of CFA Institute serve on several liaison committees that meet regularly to make recommendations to the IASB and FASB on proposed standards and to draft comment letters and position papers.

Other Sources of Information

LOS: Describe information sources that analysts use in financial statement analysis besides annual and interim financial reports.

Regulatory filings are not the only source of information available to analysts. Information on both companies and industries is produced internally and externally. The three main sources of this information are issuers, public third parties, and proprietary primary research.

Issuer Sources

- Earnings calls are hosted by issuers' management to discuss financial results with analysts, investors, and members of the media. While not legally required, these calls are conducted by most public companies to provide complementary information to regulatory filings, such as explanations of divergence from performance expectations, revisions to forward-looking targets, and explanations of corporate actions such as acquisitions and restructurings. It is important for the analyst to be aware that these calls are unregulated and can often have a degree of bias from management.
- Presentations and events, such as investor days, are like earnings calls but are scheduled as needed. They are often hosted by issuers or investment banks and allow management teams to give in-depth presentations on their business or specific topics and business segments. As with earnings calls, analysts must be aware of potential management bias and should ask questions to gather the information they want.
- Press releases can cover a range of topics, including notifications of upcoming events such as earnings calls or presentations, product releases and changes, management and board of director changes, and M&A or restructuring announcements. Press releases are often distributed not only on issuers' websites but also on third-party news sources.
- Speaking with management, investor relations, or other company personnel
- Company websites or visits to physical properties can allow analysts to experience an issuer's and competitors' products firsthand. This experience is not always possible, however, as is typically the case with pharmaceuticals.

Public Third-Party Sources

- Industry whitepapers and analyst reports
- Economic or industry indicators from governments and other organizations, such as retail sales or price indexes, are typically released monthly or quarterly.
- Public or industry-specific news outlets
- Social media may be a useful gauge of customer sentiment for a company's products.

Proprietary Third-Party Sources

- Analyst reports and communications, either from the sell side or from analysts and credit rating agencies
- Reports and data from platforms such as Bloomberg, Wind, and FactSet
- Reports and data from consultancies, often industry-specific sources such as Rystad for energy markets, iQvia and Evaluate in biopharma, and Gartner and IDC in information technology

Proprietary Primary Research

- Surveys, conversations, product comparisons, and other studies commissioned by the analyst or conducted directly

In summary, additional perspective can be very helpful in building a company's story. Information from sources apart from the company is crucial to an analyst's valuation process. Biases will exist everywhere, even in the analyst's own mind, and outside sources help give a more rounded picture of a company than simple reliance on regulatory filings and management commentary.

Learning Module 2
Analyzing Income Statements

LOS: Describe general principles of revenue recognition, specific revenue recognition applications, and implications of revenue recognition choices for financial analysis.

LOS: Describe general principles of expense recognition, specific expense recognition applications, and 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.

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

LOS: 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.

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

The income statement is analyzed to evaluate and forecast companies' growth rates, profitability, and risks; it is also used in the valuation process. Income statements and the analytical measures derived from them, such as sales growth, operating margin, and earnings per share (EPS), are critical for both equity and credit analysis.

Revenue Recognition

LOS: Describe general principles of revenue recognition, specific revenue recognition applications, and implications of revenue recognition choices for financial analysis.

General Principles

Accrual accounting requires that revenues and costs are recognized independently of the timing of related cash flows. If, for example, a company receives cash in advance and delivers products later, it will record a liability for **unearned revenue** when the cash is initially received, and revenue will be recognized as being earned over time as products and services are delivered and the liability paid down.

Accounting Standards for Revenue Recognition

When IASB and FASB accounting standards converged in May 2014, this enhanced comparability and introduced some changes to the basic principles of revenue recognition.

The core principle of the converged standards is that revenue should be recognized in order 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 an exchange for those goods or services."

To meet this core principle, the standards describe five steps in recognizing revenue:

- Identify the contract(s) with a customer.
- Identify the separate or distinct performance obligations in the contract.
- Determine the transaction price.
- Allocate the transaction price to the performance obligations in the contract.
- Recognize revenue when (or as) the entity satisfies a performance obligation.

A contract is an agreement and commitment between two or more parties with commercial substance and establishes each party's obligations and rights, including payment terms. A contract exists only if collectability is probable; IFRS and US GAAP apply different thresholds for probable collectability. Under IFRS, probable means more likely than not, whereas under US GAAP, it means likely to occur. This subtle difference can result in economically similar contracts being treated differently under the two standards.

Performance obligations represent promises to transfer distinct good(s) or service(s). Each identified performance obligation is accounted for separately.

A good or service is distinct if:

- the customer can benefit from it on its own or in combination with readily available resources and
- the promise to transfer it can be separated from other promises in the contract.

The transaction price is the amount identified in the contract that the seller estimates it will receive from the buyer in exchange for goods or services. Once the transaction price is agreed to, it is then allocated to each identified performance obligation. The amount recognized reflects expectations about collectability and (if applicable) an allocation to multiple obligations within the same contract. Revenue is recognized when the obligation-satisfying transfer is made.

Revenue should be recognized only when it is highly probable that the contract will not reverse. This may result in initially recording a minimal amount of revenue upon sale when the total revenue from the sale is not reliable. The entire refund obligation will be reflected on the balance sheet as a liability and will include an asset for the "right to returned goods" based on the carrying amount of inventory less costs of recovery.

Revenue is also only recognized when the seller is able to satisfy the performance obligation by transferring control of the asset to the customer. Factors that determine whether the customer has obtained control of an asset at a point in time include:

- The seller has a present right to payment
- The customer has legal title
- The customer has physical possession
- The customer has the risks and rewards of ownership
- The customer has accepted the asset

Completing these steps for simple contracts is straightforward, but not for more complex contracts, which include:

- Contracts where performance obligations are to be met over time
- Multi-period contracts where terms are modified over time
- Contracts where the performance obligation includes various components of goods and services, or when the compensation is variable (eg, bonuses for timely completion)

The examples that follow illustrate how such complex contracts are dealt with under the converged standards. As you go through these cases, notice how the end result/treatment does not deviate substantially from that under the old revenue recognition standards; instead it is just the conceptual approach, and in some cases the terminology, that differs.

Example 1

A construction company, ABC Inc., enters a contract with XYZ Inc. to construct a commercial building. The two parties identify several goods and services that must be provided, including pre-construction engineering, construction of the building's individual components, plumbing, electrical work, and interior finishing.

Question

When it comes to "identifying the performance obligation," can ABC treat each specific item as a separate performance obligation to which revenue can be allocated?

Solution

The converged standards state that to determine whether a good or service is distinct for purposes of identifying performance obligations, (1) the customer should be able to benefit from the good or service either on its own or together with other readily available resources, and (2) the seller's promise to transfer the good or service to the customer must be separately identifiable from other promises in the contract. In this case, the second criterion is not met since the seller has been contracted to construct the building, not the separate goods and services. Therefore, when it comes to recognizing revenue, ABC cannot treat each good or service as a distinct source of revenue. Construction of the building is the single performance obligation in this contract.

Example 2

ABC's building construction contract with XYZ specifies consideration of $2 million. ABC expects to incur costs amounting to $1,700,000 to satisfy the terms of the contract. During Year 1, ABC incurs $1,190,000 in costs.

Question

Given that costs incurred accurately reflect the completion status of the contract, how much revenue should ABC recognize for Year 1?

Solution

The converged standards state that when performance obligations will be satisfied over multiple accounting periods, revenue must be recognized over time based on progress made toward satisfying the obligation. Since ABC has incurred 70% (= 1,190,000 / 1,700,000) of total expected contract costs, it will recognize $1,400,000 (70% of $2 million) of revenue in Year 1.

Note that this is the same amount of revenue that would be recognized using the percentage-of-completion method under the old accounting standards. However, the converged standards simply require that revenue be recognized based on the proportion of total costs that have been incurred in the period or an output method (recognizing revenue based on units produced or milestones achieved).

Example 3

Now assume that ABC's building construction contract with XYZ is worth $2 million plus a bonus payment of $300,000 if the project is completed within two years. ABC has limited experience with similar types of contracts, and many factors outside its control (eg, weather, regulatory reforms, availability of materials) could delay completion. ABC expects to incur $1,700,000 worth of costs to complete the building. It incurs $1,190,000 in costs in Year 1.

Question

Given that costs incurred provide an appropriate measure of progress toward contract completion, how much revenue should ABC recognize in Year 1?

Solution

This example illustrates the treatment of variable consideration under the converged standards. Variable consideration may be recognized as revenue only if the company can conclude that it will not have to reverse the cumulative revenue in the future. In this example, ABC is unable to reach this conclusion due to (1) its limited experience and (2) the various factors outside its control that could delay the project. Therefore, it cannot recognize any of the bonus as revenue in Year 1.

Example 4

Continuing from Example 3, now assume that at the beginning of Year 2 the two parties to the contract agree to change the building floor plan and modify the contract. As a result, the contract will now be worth $2.2 million, and the $300,000 bonus will now be paid out as long as the project is completed in another 1.5 years (2.5 years from initiation). The changes will result in an increase in ABC's costs amounting to $150,000, but now, with an additional six months to earn the bonus, ABC believes that it does meet the criteria for being able to recognize the bonus as revenue.

Question

How should ABC account for the changes in the contract?

Solution

First of all, note that the previous standards did not provide a general framework for accounting for contract modifications, while the converged standards do provide guidance on whether a change in a contract creates a new contract or just a modification of an existing contract. In order to be considered a new contract, the change would need to involve goods and services that are distinct from the goods and services already transferred.

In this example, the changes do not meet the criteria for a new contract, so this is a modification of the contract. This requires the company to reflect the impact on a cumulative catch-up basis, where it must update the transaction price and measure of progress.

- ABC's expected total revenue from the project is now $2.5 million ($2 million original amount + $200,000 new consideration + $300,000 completion bonus).
- Its completion status is now at 64.32% ($1,190,000 costs incurred / Total expected costs of $1,700,000 + $150,000).
- Based on the updated completion status and expected total revenue, ABC must recognize a total amount of $1,608,108 (calculated as 64.32% of $2.5 million) in revenue.
- ABC has already recognized $1,400,000 worth of revenue (from Example 2), so it must now recognize an additional $208,108 of revenue as a cumulative catch-up adjustment on the date of the contract modification.

Expense Recognition

LOS: Describe general principles of expense recognition, specific expense recognition applications, and 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.

General Principles

Expenses are defined in the IASB framework as "decreases in economic benefits during the accounting period in the form of outflows or depletions of assets or incurrences of liabilities that result in decreases in equity, other than those relating to distributions to equity participants."

The most important principle of expense recognition is the **matching principle**, which requires that expenses be matched with associated revenues when recognizing them on the income statement. Accounting for cost of goods sold is a key example of the matching principle. If goods bought in the current year remain unsold at the end of the year, their cost is not included in the cost of goods sold for the current year to calculate current period profits.

Instead, the cost of these goods will be subtracted from the revenue from the period in which they were sold. Certain expenses (eg, administrative costs) cannot be directly linked to the generation of revenues. These expenses are called period costs and are allocated systematically with the passage of time. In summary, a company recognizes expenses in the period it uses up an economic resource.

Two other common expense recognition models, in accordance with the matching principle, are expensing as incurred and capitalizing with subsequent depreciation or amortization.

Example 5 Matching inventory costs with revenues

In its first year of business (20X8), Brainiac Inc. made the following purchases:

	Units purchased	Cost per unit ($)	Total cost ($)
First quarter	2,500	20	50,000
Second quarter	3,550	22	78,100
Third quarter	4,200	25	105,000
Fourth quarter	3,500	26	91,000
Total	**13,750**		**324,100**

Question

Brainiac sold 9,100 units during 20X8 at a price of $30 per unit. Ending inventory consists of 4,650 units from the most recent purchases. Calculate total revenue and the cost of goods sold during the year.

Solution

$$\text{Total revenue} = 9{,}100 \times \$30 \text{ per unit} = \$273{,}000$$

The cost of the 9,100 units sold during 20X8 will be expensed (included in COGS and matched against 20X8 revenues). The cost of the remaining 4,650 units will remain in inventory.

Calculation of cost of goods sold:

	Units purchased	Cost per unit ($)	Total cost ($)
First quarter	2,500	20	50,000
Second quarter	3,550	22	78,100
Third quarter	3,050	25	76,250
Total	**9,100**		**204,350**

Calculation of ending inventory:

	Units purchased	Cost per unit ($)	Total cost ($)
Third quarter	1,150	25	28,750
Fourth quarter	3,500	26	91,000
Total	**4,650**		**119,750**

To confirm that all costs ($324,100) are accounted for, we add the cost of inventory apportioned to COGS and the cost allocated to ending inventory.

$$204{,}350 + 119{,}750 = \$324{,}100$$

In 20X8, cost of goods sold will be matched against revenues as follows:

Total revenue	$273,000
Cost of goods sold	($204,350)
Gross profit	$68,650

Ending inventory ($119,750) will be matched against revenues in 20X9 when these units are sold.

Period costs, which do not directly align with revenues, are generally expensed as incurred.

Capitalization versus Expensing

Some expenditures can be capitalized on the balance sheet as assets instead of being expensed on the income statement. Typically made to acquire long-lived, tangible assets like PPE, or intangible assets with definite lives, these expenditures are recorded on the cash flow statement as cash flows from investing activities and are expensed on the income statement as they are depreciated or amortized over their useful lives.

Expenditures that extend the life of an asset can also be capitalized. For example, replacing key components like an engine would extend the life of a vehicle and can be capitalized. However, basic maintenance on a company's truck, like an oil change or brakes, would be expensed as these expenditures are part of the normal care of the vehicle from wear and tear.

The decision to expense or capitalize an expenditure will impact the financial statements, and consequently, financial ratios. For example, capitalizing expenditures, rather than expensing them, will result in greater taxable earnings in the year of purchase, and subsequently greater tax expense in that year. This will affect profitability ratios as well as the effective tax rate.

Example 6 General financial statement impact of capitalizing versus expensing

Two companies, Clark Inc. and Noon Inc., commence operations and issue $500 of common stock for cash. In Year 1, they each spend $450 to purchase a piece of equipment. Both companies make cash sales of $750 and incur cash operating expenses of $250 each year for 3 years. Clark estimates the useful life of the equipment to be 3 years with zero salvage value, while Noon expenses the entire cost of the equipment in Year 1. Both companies are subject to a 30% tax rate.

Clark Inc.'s income and cash flow statement extracts

- Clark capitalizes the cost of the asset.
- Annual depreciation equals $150 (straight-line basis).

(in $)	**Year 1**	**Year 2**	**Year 3**
Revenues	750	750	750
Operating expenses	(250)	(250)	(250)
Depreciation	(150)	(150)	(150)
Income before tax	350	350	350
Taxes	(105)	(105)	(105)
Net income	245	245	245
CFO (Net income + Depreciation)	395	395	395
CFI	(450)	0	0
Change in cash	(55)	395	395

Noon's income and cash flow statement extracts

- The company expenses the entire cost of the asset in Year 1.

(in $)	Year 1	Year 2	Year 3
Sales	750	750	750
Expenses (Operating expenses + Equipment cost)	(700)	(250)	(250)
Depreciation	0	0	0
Income before taxes	50	500	500
Taxes	(15)	(150)	(150)
Net income	35	350	350
CFO (Net income + Depreciation)	35	350	350
CFI	0	0	0
Total change in cash	35	350	350

Questions

1. Which company reports greater net income over the 3 years?
2. What is the total cash flow for the companies over the 3 years?
3. What is cash flow from operations for the companies over the 3 years?
4. Calculate shareholders' equity for both companies for each of the 3 years.
5. Compare Clark's and Noon's profitability based on their ROE and net profit margin ratios.

Solutions

1. Total net income over the three years is the same for both companies.

(in $)	Year 1	Year 2	Year 3	Total
Clark's change in cash	–55	395	395	735
Noon's change in cash	35	350	350	735

   Noon reports less income in the first year as it expenses the entire cost of the equipment in Year 1. Clark reports less net income in subsequent years as it continues to depreciate the asset, whereas Noon has already written it off entirely. Less income in Year 1 allows Noon to pay less in taxes in Year 1. If we were to build interest income on cash savings into the analysis, Noon would benefit.

2. Total cash flow over the 3-year period is also the *same* for both companies.

(in $)	Year 1	Year 2	Year 3	Total
Clark's change in cash	–55	395	395	735
Noon's change in cash	35	350	350	735

   Noon reports an increase in cash of $35 in Year 1, while Clark reports a decrease in cash of $55. This is due to Noon's cash taxes being $90 less than Clark's ($15 versus $105). Note that we have assumed here that the companies use the same method of depreciation for financial statement and tax purposes. If this were not the case, deferred taxes would arise. We will study this aspect of depreciation expense in a later reading.

3. Clark's cash flow from operating activities over the 3 years is greater than Noon's by $450 (the cost of the asset). Since Clark capitalized the cost of the equipment, it classifies it as an outflow from investing activities, not as an outflow from operating activities (as is the case with Noon).

(in $)	**Year 1**	**Year 2**	**Year 3**	**Total**
Clark's cash flows from operations	395	395	395	1,185
Noon's cash flows from operations	35	350	350	735

4. Neither company pays any dividends, and there is no mention of other comprehensive income and capital contributions by shareholders. Therefore:

Retained earnings + Common stock = Total shareholders' equity

Clark

(in $)	**Year 0**	**Year 1**	**Year 2**	**Year 3**
Retained earnings	0	245	490	735
Common stock	500	500	500	500
Total shareholders' equity	500	745	990	1,235

Noon

(in $)	**Year 0**	**Year 1**	**Year 2**	**Year 3**
Retained earnings	0	35	385	735
Common stock	500	500	500	500
Total shareholders' equity	500	535	885	1,235

5. ROE = Net income / Average shareholders' equity

Clark

(in $)	**Year 1**	**Year 2**	**Year 3**
Net income	245	245	245
Average shareholders' equity	622.5	867.5	1,112.5
ROE	39%	28%	22%

Noon

(in $)	**Year 1**	**Year 2**	**Year 3**
Net income	35	350	350
Average shareholders' equity	517.5	710	1,060
ROE	7%	49%	33%

Net profit margin = Net profit / Revenue

Clark

(in $)	Year 1	Year 2	Year 3
Net income	245	245	245
Revenue	750	750	750
Net profit margin	33%	33%	33%

Noon

(in $)	Year 1	Year 2	Year 3
Net income	35	350	350
Revenue	750	750	750
Net profit margin	5%	47%	47%

Capitalization results in higher ROE and net profit margin for Clark in Year 1.

- Expensing the entire amount in Year 1 allows Noon to report higher ROE and net profit margin in subsequent years.
- Noon's impressive net profit margin growth from Year 1 to Year 2 (from 5% to 47%) is simply due to the expensing decision. Its growth is not due to superior operating performance compared with Clark's. The decision to expense also results in high variability in reported net income from year to year for Noon.

Impact of Capitalization versus Expensing on Financial Statement Analysis

Decisions to expense or capitalize an item can make it difficult for an analyst to compare companies. Analysts should be wary of companies that:

- Inflate reported cash flow from operations by capitalizing expenditures that should be expensed.
- Inflate profits to meet earnings targets by capitalizing costs that should be expensed.
- Depress current period income by expensing costs that should be capitalized, in order to exhibit impressive profitability growth going forward without any real improvement in operating performance.

Finally, note that in Example 6, both companies acquired a fixed asset in Year 1 only. If a company continues to purchase comparable or increasing amounts of fixed assets every year, capitalization will result in higher profits and higher operating cash flows over an extended period. This will continue to be the case until the value of fixed assets purchased in a given year is lower than depreciation charged on capitalized assets.

Capitalization of Interest Costs

If a company acquires or constructs an asset that requires a long period of time to be prepared for use, then the interest costs associated with those activities must be capitalized. As such, the capitalized interest costs are recorded on the balance sheet as part of property, plant and equipment along with the asset and are expensed over time, as the asset is depreciated, as part of depreciation expense (not interest expense). The depreciation expense of the entire cost of the asset, including the interest expense, is only recorded on the income statement once the asset is brought into use.

One exception to this standard is an asset constructed by a real estate construction firm whose core business is the construction and sale of buildings. For these instances when a building is constructed with the intention of selling it, capitalized interest costs are included along with costs of construction in inventory as a part of current assets. The capitalized interest is expensed as a part of COGS in the period that the building is sold.

How interest expense is recorded will affect how a company's cash flows are reported. If the interest expense is capitalized, it will appear in the company's cash flows from investing activities. US GAAP require expensed interest to fall under cash flows from operating activities. Alternatively, IFRS allow interest expense to fall under operating, investing, or financing cash flows. Analysts need to be aware of how interest costs were recorded as they impact reported cash flow differently. Also, capitalized interest expense can impact interest coverage ratios and make a company appear more solvent than it really is. To account for this, all interest expense, capitalized and expensed, should be used to calculate interest coverage. Furthermore, depreciation expense should also be adjusted downward to account for the interest expense used in its calculation.

Example 7 Capitalized borrowing costs

A company borrows $10 million to finance the construction of an office building where it expects to base its headquarters for the next 50 years. The interest rate on the loan is 6%. Construction takes 3 years.

1. What amount of interest cost would the company capitalize?
2. Where will the capitalized interest costs appear on the company's financial statements?

Solutions

1. The company would capitalize the amount of interest paid on the loan during construction. This amount equals ($10 million × 0.06 × 3) = $1,800,000.
2. Capitalized interest will be included in the carrying amount of the asset (building) under noncurrent assets on the balance sheet.

   The amount of interest that is capitalized will appear on the cash flow statement under investing activities (during the 3 years of construction).

   Once construction is complete and the asset is in use, capitalized interest will be depreciated as a part of depreciation on the office building on the income statement.

   Once construction is complete, depreciation of capitalized interest (as a part of total depreciation) will appear on the company's cash flow statement each year if prepared using the indirect method (added to net income in the calculation of CFO).

Capitalization of Internal Development Costs

IFRS and US GAAP require the capitalization of internal development costs once the product's feasibility has been established. Determining feasibility leaves room for judgment and discretion, however.

Implications for Financial Analysts: Expense Recognition

Recognition of expenses sooner rather than later is considered more conservative. Many expense items require estimation as well as discretion. Analysts should try to gauge the reasonableness of judgments and estimates in the context of a company's features, such as business operations, industry, age, etc.

Non-recurring Items

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

To forecast future earnings, analysts must identify the revenues and expenses that are not likely to occur in the future, or **nonrecurring items**.

Unusual or Infrequent Items

IFRS require that income and expense items that are material and/or relevant to the understanding of a company's financial performance, such as unusual or infrequent items, be disclosed separately. Under US GAAP, material items that are unusual or infrequent are shown as part of a company's continuing operations but are presented separately.

Items that are either unusual or infrequent, such as restructuring charges or gains and losses arising from selling an asset for more or less than its carrying value, qualify for these disclosures. These items are listed as separate line items on the income statement but are included in income from continuing operations and are therefore reported pretax.

Analysts should not ignore all unusual items and assess whether each of them is likely to reoccur when forecasting future profits.

Discontinued Operations

Both IFRS and US GAAP require the income statement to report an operation that the company disposes of, or plans to dispose of, as a "discontinued operation." In that case, discontinued operation results are reported net of tax as a separate line item after income from continuing operations, including on a per-share basis. Additionally, all assets and liabilities related to the discontinued operation are reported as held-for-sale on the balance sheet. As the disposed operation will not earn revenue for the company going forward, it should not be taken into account when formulating expectations regarding the future performance of the company. This reporting allows the analyst to easily separate a company's continuing operations from its discontinued operations.

Changes in Accounting Policy

Changes in accounting policies can be necessary due to changes in accounting standards or in the company's operations and may be adopted retrospectively or prospectively.

In cases where the company chooses to change an accounting policy, often to provide a better reflection of the company's performance, the change must be applied retrospectively. A common example of these changes is moving from one inventory costing method to another, such as moving from LIFO to FIFO. Retrospective application presents all fiscal year results reported on the financial statements, reported as though the change had been in effect for all of those years, such that all years in a single report are comparable. The notes explain the changes.

New revenue recognition standards offer companies the option of using a "modified retrospective" method of adoption, which does not require revising previously reported financial statements. Opening balances of retained earnings and other relevant accounts are adjusted for the cumulative impact of the change.

Changes in accounting estimates, like a change in the residual value of an asset, are applied prospectively, only affecting financial statements for the current and future periods. No adjustments are made to prior statements, and the adjustment is not shown on the face of the income statement. Significant changes in accounting estimates should be disclosed in the footnotes.

Corrections of prior-period errors are made by restating all prior-period figures presented in the financial report and disclosing the error in the footnotes as well. Analysts should carefully assess these disclosures as they may point to weaknesses in the company's accounting system or financial controls.

Changes in Scope and Exchange Rates

Acquisitions can reduce comparability across periods when a newly acquired company is consolidated into the issuer's financial statements. Exchange rate movements can also affect reported results for multinational companies by increasing or decreasing revenues and other line items when translated into the reporting currency. Although accounting standards do not require detailed disclosure of these effects for each financial statement item, many issuers provide summary measures, such as growth excluding changes in scope and exchange rates, in management reporting.

Earnings Per Share

LOS: 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.

Earnings per share (EPS) is one of the most important profitability measures for publicly listed firms. Earnings refer to the share of net income of a company that is owned by common shareholders only. Companies are required to report both basic and diluted EPS, as well as amounts for continuing operations, toward the bottom of their income statements.

Simple versus Complex Capital Structure

Ordinary or common shares are equity shares that are subordinate to all other types of equity; they are the most basic ownership shares of the company. A company has a simple capital structure if it has no outstanding financial instruments that can be converted into common stock, or **ordinary shares**. The terms "ordinary shares," "common shares," and "common stock" are used interchangeably in discussions surrounding earnings per share.

Basic EPS

Firms with simple capital structures are required only to report basic earnings per share. The "earnings" are the earnings available to common shareholders, so dividends to preferred shareholders are excluded:

Exhibit 1 Basic earnings per share

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

Example 8 Basic EPS

The information provided here pertains to Liu PLC for the year ended Dec 31 20X8. Calculate basic EPS for the company:

- Net income for 20X8: $2,625,000
- Preferred dividends for the year: $420,000
- Weighted average number of common shares outstanding: 600,000

Solution

$$\text{Basic EPS} = (2{,}625{,}000 - 420{,}000) / 600{,}000 = \$3.68$$

Stock repurchases result in a decrease in the number of shares outstanding. Therefore, reacquired shares are excluded from the calculation of weighted average number of shares from the date of repurchase. For example, if a company had 1,000 shares outstanding at the start of the year and repurchased 100 shares in July, the weighted average number of shares outstanding would be calculated as $(1{,}000 \times 12 / 12) - (100 \times 6 / 12) = 950$.

In contrast, stock splits and stock dividends result in an increase in the number of shares outstanding. In a stock split, existing shares in a company are "split" into more shares. For example, for a shareholder holding 1,000 shares, a 2-for-1 stock split will increase the number of shares held to 2,000. After a 3-for-2 stock split, the owner of 1,000 shares will see her shareholding increase by 500 shares to 1,500.

A stock dividend is a dividend paid as additional shares of stock rather than cash. These additional shares are granted to each shareholder in proportion to her current holding. After a 25% stock dividend, the holder of 1,000 shares will get 250 (25%) more shares to take her total shareholding to 1,250 shares.

The stock split and stock dividend are applied to all shares outstanding prior to the split or dividend announcement and are not applied to any shares issued or repurchased after the announcement.

Important: If a company declares a stock split or a stock dividend, the weighted average number of shares outstanding should be calculated based on the assumption that the additional (newly granted) shares have been outstanding since the date that the original shares were outstanding, as demonstrated in Example 9.

Example 9 Basic EPS Calculation with stock splits and stock dividends

Shares issued during the year enter the computation from the date of issuance.

The stock split and stock dividend are applied to all shares outstanding prior to the split or dividend annoucement. They are not applied to any shares issued or repurchased after the annoucement. The stock split applies only to the 1 million shares outstanding at January 1. The stock dividend applies to the 1 million shares outstanding since January 1, the additional shares issued on those 1 million shares in the stock split, and the 500,000 shares that were issued on June 30.

LEM Company has reported net income of $1,850,000 for the year ended December 31, 2008. The company declared preferred dividends of $150,000. The following information regarding shares outstanding is available:

Shares outstanding at January 1, 2008	1,000,000
2-for-1 stock split on April 1, 2008	
Shares issued on June 30, 2008	500,000
10% stock dividend on September 1, 2008	
Shares repurchased on October 1, 2008	150,000
Shares outstanding on December 31, 2008	2,600,000

Calculate 2008 basic EPS for LEM.

Solution

Shares outstanding on January 1	**1,000,000**
2-for-1 stock split	1,000,000
	2,000,000
10% stock dividend	200,000
Shares outstanding since January 1 (for 12 months)	2,200,000
Shares issued on June 30	**500,000**
10% stock dividend	50,000
Shares outstanding since June 30 (for 6 months)	550,000
Shares repurchased on October 1	
Not outstanding for 3 months	150,000

VERY IMPORTANT

When weighting the shares, assume that the new shares issued from the stock split or stock dividend were outstanding NOT since date of split or stock dividend declaration, but from the date from which the original shares were outstanding.

Weighted average number of shares outstanding

= (2,200,000 × 12/12) + (550,000 × 6/12) − (150,000 × 3/12) = **2,437,500**

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

Basic EPS = ($1,850,000 − $150,000)/2,437,500 = **$0.70**

Diluted EPS: The "If-Converted" Method

Complex capital structures have outstanding financial instruments that can be converted into common shares of the company, such as convertible bonds, convertible preferred stock, employee stock options, and warrants. The conversion of any instrument into common stock can dilute the value of the shares held by common shareholders, reducing their EPS. In such cases, the convertible securities are dilutive. Companies are required to report both basic EPS and diluted EPS, calculated under the assumption that all dilutive instruments are converted. By definition, diluted EPS is always less than or equal to basic EPS.

Diluted EPS When a Company Has Convertible Preferred Stock Outstanding

The if-converted method is used to calculate diluted EPS when the company has convertible preferred stock outstanding: the preferred shareholders' dividends would be added back to net income (the numerator) since the dividends would no longer be paid once the shares were converted into common stock. The number of new common shares that result from the conversion would be added to the number of common shares outstanding (in the denominator).

Exhibit 2 Diluted EPS with convertible preferred stock

$$\text{Diluted EPS} = \frac{\text{Net income} - \text{Preferred dividends} + \text{Convertible preferred dividends}}{\text{Weighted average number of shares outstanding} + \text{New common shares issued upon conversion}}$$

Example 10 Diluted EPS

Xingia Inc. earns profits of $2,500,000 for the year ended Dec 31 20X8. Xingia has 1,000,000 weighted average shares outstanding during the year and pays taxes at the rate of 40%. Xingia also has 1,000 convertible preferred shares outstanding, which pay a dividend of $50 per share every year. Each convertible preferred share can be converted into 100 common shares. Calculate Xingia's basic and diluted EPS for 20X8.

Solution

Basic EPS = (2,500,000 − 50,000) / 1,000,000 = $2.45

Each preferred share can be converted into 100 shares of common stock. Therefore: the number of common shares issued upon conversion = 100 × 1,000 = 100,000

Diluted EPS = (2,500,000 − 50,000 + 50,000) / (1,000,000 + 100,000) = $2.27

Since basic EPS equals $2.45, and EPS is lower if convertible preferred shares are converted ($2.27), the convertible preferred shares are dilutive. If EPS after conversion were greater than basic EPS, these shares would be antidilutive and would not be included in the calculation of diluted EPS.

A quick way to determine whether convertible preferred shares are dilutive is to divide the convertible preferred dividends by the new shares issued upon conversion. If this per-share figure is lower than basic EPS, the convertible preferred shares are dilutive and should be included in the calculation of diluted EPS. If this figure is greater than basic EPS, the convertible preferred shares are antidilutive and should be ignored in the calculation of diluted EPS.

Diluted EPS When a Company Has Convertible Debt Outstanding

In a situation where a company has convertible debt outstanding, diluted EPS is calculated using the if-converted method: assuming all convertible debt is converted into ordinary shares at the beginning of the period. Interest payments (net of the tax shield) that would have been made to bondholders are added back to net income (in the numerator) since the company would not pay interest on the convertible bonds if the bonds were converted to ordinary shares. The number of shares outstanding in the denominator will increase by the number of common shares that would be issued to convertible debtholders upon conversion.

Exhibit 3 Diluted EPS with convertible debt

$$\text{Diluted EPS} = \frac{\text{Net income} - \underbrace{\text{Preferred dividends}}_{\text{For nonconvertible preferred stock}} + \underbrace{(1 - \text{Tax rate})(\text{Convertible debt interest})}_{\text{After-tax interest expense on convertible debt}}}{\text{Weighted average number of shares} + \text{New shares from conversion}}$$