2.6: Exercises

Exercise 2.6.1

The income statement captures a company's performance over time while the balance sheet captures its status at a point in time. What does this mean?

Answer

The income statement captures all activity related to revenues and expenses over a particular time period. For instance, the quarterly income statement includes all revenue and expense items for that quarter. The beginning of the quarter is treated the same as the end of the quarter. The same applies for annual income statements. However, balance sheets represent a firm's assets, liabilities, and owners' equity at a particular point in time. The quarterly balance sheet only reflects the last day of that quarter and the annual balance sheet only reflects the last day of the year. As such, the balance sheet is more open to seasonality issues and short-term fluctuations. For instance, if the balance sheet is prepared 1 day prior to a large cash payment the cash account will appear artificially large. On the other hand, if it is prepared 1 day after the payment the cash account will appear artificially small.

Exercise 2.6.2

A company has $100 million in total assets and $40 million in equity. How much does it have in total liabilities?

Answer

The firm has $60 million in total liabilities.

A = L + OE
$100M = L + $40M
$60M = L

Exercise 2.6.3

How does depreciation create a difference between earnings and cash flows? Are there any other ways/reasons in which accounting earnings can be different from cash flows?

Answer

Depreciation is a noncash expense. While it lowers net income, the firm is not actually paying anything for depreciation so it has no impact on cash flows (ignoring taxes…when considering taxes, depreciation lowers net income but increases cash flows as less cash is paid in taxes). The cash flow impact of an asset purchase from a finance perspective occurs when the asset is purchased. Spreading the cost equally over the assets useful life ignores the time value of money and understates the true cost of the purchase. A few other issues that may create a difference between cash flows and earnings include (this is not a complete list) –

- Revenue recognition
- Inventory accounting method
- Prepaid expenses
- Accounts Payable/Receivable

Exercise 2.6.4

What types of people use ratio analysis? Who might be most interested in liquidity ratios? asset management ratios? debt management ratios? profitability ratios? market value ratios?

- Management
- Competitors

- Stockholders (and potential stockholders)
- Long-Term Creditors
- Short-Term Creditors

Answer

While many people use ratio analysis, the primary parties interested are

When analyzing **Asset Management Ratios**, the most interested parties are management, competitors, and stockholders. Again, management must be interested in all the ratios as they must manage all aspects of the firms operations. Competitors are interested as a gauge of their own performance. If our competition has a total asset turnover of 2.50 and ours is only 1.95 we must understand what they are doing to outperform us in this measure. By identifying our weaknesses, we can address them. Stockholders have some interest in that often asset management ratios impact a firm's ability to generate profits and increase firm value. Long-term and short-term creditors are typically not significantly concerned with these measures as they do not share in any "extra" profits the company generates. As long as the firm is able to meet interest and principle obligations, debt holders are happy.

Management, long-term creditors, short-term creditors, and stockholders are all focused on **Debt Management Ratios**. These ratios measure a firm's ability to meet their debt obligations, so creditors want to see these ratios strong in order to be confident of receiving their full interest and principle payments. Long-term creditors are probably more focused on this as short-term creditors hope to be repaid quickly enough that they are more concerned about the liquidity issues. Stockholders are concerned because if the firm is unable to meet its debt obligations it will be forced into bankruptcy and the stockholders will likely lose all of their investment.

Profitability Ratios are a concern primarily for management, competitors, and stockholders. Creditors, both LT and ST, do not participate in profits so their only concern with profitability ratios is if they are negative and threaten the ability of the firm to meet interest and principal payments. Like asset management ratios, competitors use profitability ratios as a method to gauge their strengths and weaknesses. Since stockholders "own" the business, the profits belong to them. Therefore, the stronger the profitability ratios, the happier the stockholders are.

Market Value Ratios are looked at by stockholders and management. These ratios measure how "cheap" or "expensive" the stock is. Management typically wants these ratios to be high as it is a sign that they are maximizing firm value. Potential stockholders typically want them low as that is an indication that the stock may be cheap (except for dividend yield). As a side note, market value ratios are often much more difficult to analyze than many people would like.

When analyzing **Liquidity Ratios**, the most interested parties are management and short-term creditors. Management needs to understand the firm's liquidity position in order to properly manage the firm. Short-term creditors typically do not care much about the long-term health of the firm, but only if they have enough liquid capital to meet the short-term obligations. Long-term creditors and stockholders would also be interested, but primarily only if the liquidity ratios were weak enough to damage the long-term health of the firm.

Exercise 2.6.5

Company A has a ROA of 8% and a ROE of 12%. Company B has a ROA of 7% and an ROE of 15%. What does this tell us about the relative levels of debt financing between these two companies? Which company's approach is better?

Answer

The key to this question recognizing the role of the equation A = L + OE in these two ratios. Because all firms use some degree of liabilities (long-term debt, accounts payable, accruals, etc.), we know that Assets must be larger than Owners' Equity. The greater the amount of debt financing (liabilities), the greater the difference between Assets and Owners Equity will be. Also, since the difference between ROA and ROE is the denominator (ROA is NI/Assets while ROE is NI/OE), ROE will always be higher than ROE (for firms with positive NI). Finally, the greater the amount of debt financing (liabilities), the greater the difference between ROA and ROE will be.

When considering the above paragraph, we can now comment on the specific ROA and ROE numbers for Company A and B. Since Company B has a lower ROA and a higher ROE (relative to Company A), we know that Company B is using more leverage (debt financing) than Company A.

Neither approach is necessarily “better” or “worse” than the other. They are just different. Company B is using a more aggressive (riskier) strategy of financing. The higher level of debt increases the risk, but also means stockholders earn a greater return on their money when the company does well. However, if the company does poorly, the higher leverage (debt financing) will magnify the losses (as the interest must still be paid and the loss is spread over less shareholder capital). Thus, higher amounts of debt financing are riskier, but also increase the potential return. Which approach is better depends on the level of risk aversion for each shareholder.

? Exercise 2.6.6

Company A tends to have most of its sales in the fourth quarter and does a large percentage of sales on a credit basis. Company B also sells primarily on credit, but most of its sales come in the first and second quarter. An analyst looks at their DSO ratio from the annual balance sheet and income statement and notices that company A has a much higher DSO outstanding. The analyst concludes that Company A is doing a poor job of managing its accounts receivable. Is the analyst correct? Explain? Which company would likely have a higher inventory turnover ratio and why?

Answer

The DSO ratio does provide an indication of how long it is taking a firm to collect its credit sales. Thus, a high DSO ratio can be an indication of a problem in managing a firm’s accounts receivables. However, one must be very careful in jumping to conclusions. First, DSO can be very industry dependent. Second, and the issue in this question, is that DSO uses both balance sheet and income statement values to calculate the ratio. As the Annual Income statement is not subject to seasonality while the Annual Balance Sheet is, there is the potential for seasonality issues to distort the ratio. Specifically, Company A has larger accounts receivable on their annual balance sheet due to the seasonal nature of their sales. This inflates their DSO ratio. Company B has had plenty of time to collect their accounts receivable. This is a prime example of why you need to consider seasonality when evaluating ratios.

If we think of the inventory turnover ratio, Company A should appear to be doing better. Specifically, they will have less inventory on hand at the end of the year (as their heavy sales season is winding down and they approach seasonally lower sales). Alternatively, Company B’s inventory will be high to meet their seasonally high 1st and 2nd quarter sales that are right around the corner.

? Exercise 2.6.7

Which statements are subject to seasonality?

a. Quarterly Income Statement
b. Annual Income Statement
c. Quarterly Balance Sheet
d. Annual Balance Sheet

Answer

Subject to Seasonality – Quarterly Income Statement, Quarterly Balance Sheet, Annual Balance Sheet

Not Subject to Seasonality – Annual Income Statement

? Exercise 2.6.8

Company A has a Profit Margin of 3% while company B has a Profit Margin of 8%. This tells us that company B is outperforming company A. Is this statement true or false and explain your answer?

Answer

This is a FALSE statement. While it is true that everything else equal, a higher profit margin is better than a lower profit margin there is not enough information to make this a true statement. We are ignoring both trend analysis and comparative analysis, so we don’t have the necessary context to evaluate the profit margin number. For instance company A could be in a low profit margin industry (such as banking or retail) while company B could be in a high profit margin industry (such as software or pharmaceuticals). Also, profit margin is only one ratio and to label one company as outperforming another based on a single ratio is shortsighted. We need to consider the larger picture before making such a statement. The purpose of this question is to illustrate that one ratio without context is close to meaningless.

? Exercise 2.6.9

What do we mean by trend analysis and comparative analysis? Why are these tools more useful than looking at the ratios for a single period in isolation?

Answer

Trend Analysis refers to looking at a firm's ratios over a period of 3-5 years to identify whether specific areas are strengthening or weakening. Comparative analysis refers to looking at a firm's ratios relative to other firms in the same industry to evaluate whether they are better or worse than industry averages. Trend/comparative analysis provides us some of the necessary context to properly interpret the ratios.

? Exercise 2.6.10

Identify at least one potential problem with trend analysis and one potential problem with comparative analysis.

Answer

Potential problems with trend analysis include

Trends can change abruptly	While it is important to identify trends, we should remember that these are past trends. Volatile business conditions can cause trends to stop or reverse unexpectedly.
Some patterns are not trends	If ROA increases from year 1 to year 2, this is not a trend but a one-year change. Often it is hard to distinguish between true strengthening/weakening trends and just random noise.
Past data may be irrelevant	Structural/strategic changes in firms may make comparisons to past years virtually meaningless.

Potential problems with comparative analysis include

Finding a comparison industry	Conglomerate companies such as General Electric are often involved in several industries making it hard to compare their ratios to an industry average.
Few competitors	Some large firms such as Microsoft dominate an industry to the extent that it is often hard to make comparisons to industry averages.

? Exercise 2.6.11

Why might a very low quick ratio be a cause for concern? How about a large quick ratio?

Answer

A very low quick ratio may be cause for concern because it could indicate liquidity concerns. A low level of cash and accounts receivable relative to our current liabilities could indicate that we will have a hard time paying those current liabilities when they are due. A very high quick ratio may be cause for concern because it indicates an inefficient allocation of resources. Cash and accounts receivable are not high return assets. We would likely be better off allocating our assets to areas with higher rates of return.

Exercise 2.6.12

From the perspective of management, what is the primary objective of financial statement analysis? What are some difficulties management might encounter in doing a complete financial statement analysis? Re-examine these two questions from the perspective of the stockholder.

Answer

The primary objective of financial statement analysis from the perspective of management is to identify potential strengths and weaknesses of our firm relative to our competitors so we can take full advantage of our strengths and work on fixing our weaknesses.

There are several difficulties that management might encounter in conducting a complete financial statement analysis. Some are mentioned in the question on potential problems with trend analysis and comparative analysis above. Other problems include comparability of financial statements across firms in the industry due to different fiscal years and/or different accounting procedures. Also, the need to dig beyond the numbers is critical. For example, is a high ROE due to a well-run company or due to too much leverage that could cause significant problems if we hit a small rough patch? Another issue is that financial statement analysis may help us identify potential strengths and weaknesses. However, even after confirming them by digging deeper, the financial statement analysis often does not recommend HOW we can fix the weakness or exploit the strength.

The primary objective of financial statement analysis from the perspective or the stockholder is to identify companies to invest in (potential stockholders) or evaluate the companies the stockholder currently owns (current stockholders).

Stockholders face many of the same problems discussed above with management. However, an important challenge for stockholders is that they must not only analyze the company's financial health, but also evaluate how much they are paying for it. There may be situations where buying stock in a company with poor financial health is a good opportunity (the stock price is "cheap" enough and there is a chance for the company to rebound). There may also be situations where selling shares of stock in a company with strong financial health is good (the stock price is so expensive that the firm's success is already more than fully reflected in the stock price). Too often stockholders get caught up in what they are buying and don't think enough about how much they are paying for it.