

Understanding Financial Management: A Practical Guide

Guideline Answers to the Concept Check Questions

Chapter 3

Interpreting Financial Ratios

Concept Check 3.1

1. **What are the different motivations that lenders, investors, and managers have when they interpret financial ratios?**

Institutional lenders look at firm's liquidity and debt ratios to determine whether to lend money to the firm and at what rate. These institutional lenders may agree to buy a firm's bonds only if the firm agrees to certain limitations on some of its financial ratios. These restrictions, designed to limit or constrain certain financial and operating activities, are detailed in the *restrictive covenants* in the firm's bond indenture. Individual lenders may also look at a firm's debt ratios in assessing whether to buy a firm's bonds. Rating agencies, such as Moody's Investor Service and Standard & Poor's Corporation, compute financial ratios to help determine the credit rating for a firm's debt issues. Equity investors often review financial ratios to estimate a firm's future profitability. Regulators sometimes use financial ratios as performance targets when determining the appropriate prices that firms may charge in regulated industries. Finally, managers frequently use financial ratios to assess performance and to identify their firm's strengths and weaknesses. They may use certain financial ratios as targets to guide their firm's investment, financial, and working capital decisions. Financial ratios may serve as a basis for determining incentives and rewards for managers.

2. **Why should financial ratios not be analyzed in isolation?**

Knowing the value of a particular financial ratio in isolation is not usually helpful. Using ratios requires a basis of comparison and a context. Analysts should determine how this ratio compares to other comparable firms in the same industry. In addition, they should also determine any trends for this ratio over the past 3 to 5 years. Finally, they need to analyze ratios in an integrated manner. Reasons for the strengths or weaknesses in some ratios often surface by considering other categories of ratios for that firm.

3. **What are some important caveats to remember when interpreting financial ratios?**

The computational formulas for some financial ratios vary. For example, the definition of debt varies among different debt ratios. Debt may include all of a firm's liabilities, just its long-term debt, or something in-between the two. Thus, analysts should exercise care when making comparisons using ratios from different sources. In addition, the accounting conventions adopted by a firm affect its financial ratios. Firms with similar operating and financial characteristics may report different financial ratios if they use

different accounting conventions for such areas as inventory valuation and depreciation. For example, whether a firm uses LIFO or FIFO inventory valuation may affect its current ratio.

Concept Check 3.2

1. **What do liquidity ratios tell us about a firm? What are the most commonly used ratios that measure a firm's liquidity?**

Liquidity ratios provide an indication of a firm's ability to satisfy its short-term liabilities as they come due. Thus, they indicate a firm's immediate solvency and ease with which the firm can pay its bills. Common liquidity ratios include the current ratio, quick ratio, cash ratio, and net working capital to total assets ratio. The current ratio is probably the most common liquidity ratio.

2. **What are some end-of-year transactions a firm's management could make to bolster its current ratio?**

A firm's management could decide to pay off some accounts payable with cash. To illustrate, consider a firm with current assets of \$20 million, current liabilities of \$10 million, and a resulting current ratio of 2.0. Suppose on the last day of its fiscal year, the firm pays off \$1 million of its accounts payable with \$1 million of cash. Current assets will fall to \$19 million, current liabilities will fall to \$9 million, and the firm's current ratio will rise to $19/9 = 2.11$. However, this end-of-year transaction does nothing to improve the firm's liquidity. In a similar way, the firm could use cash to pay other short-term liabilities at the end of a fiscal year to bolster the firm's liquidity ratio. Analysts commonly refer to these activities as "window dressing" techniques.

3. **How would a firm's decision to use LIFO or FIFO inventory accounting affect its current ratio in a period of rising prices? Would it make a difference in a period of stable prices?**

With LIFO inventory management, the cost of good sold on the income statement reflects the costs of inventory most recently produced, and the inventory amount on the balance sheet reflects the cost of inventory produced in the more distant past. In an inflationary environment, the inventory account may understate the value of that inventory. Since inventory is a component of current assets, the firm's current ratio will be understated. No such undervaluation of inventory would occur under FIFO inventory valuation where the cost of good sold on the income statement reflects the costs of oldest inventory produced, and the inventory amount on the balance sheet reflects the cost of inventory that the firm produced more recently. During periods of stable prices, differences in the inventory valuation method have a minimal effect on the current ratio.

Concept Check 3.3

1. **What do debt management ratios tell us about a firm? What are two basic types of debt management ratios?**

Two basic types of debt management ratios are leverage ratios and coverage ratios. Leverage ratios provide an indication of the relative mix of debt and equity financing employed by the firm. Thus, leverage ratios provide measures of the degree of indebtedness. Coverage ratios measure the firm's ability to service debts and to pay certain fixed charges.

2. **What is the major limitation of leverage ratios (such the debt ratio and long-term debt ratio) that are based solely on the balance sheet items?**

Simply knowing how much debt a firm has may not reveal much about the firm's ability to meet its financial obligations. An unprofitable firm with a relatively low amount of debt financing could be more likely to default of its debt than a highly leveraged firm that generates substantial income from its operations.

3. **Ambient Technologies has liquidity and debt management ratios that either exceed or are consistent with industry norms. Yet, analysts fear that ratings agencies may lower Ambient's bond rating. Why might such a downgrade occur despite apparent strength in liquidity and debt management ratios?**

Since liquidity and debt management ratios are computed using balance sheet and income statement data, they indicate a firm's current or past ability to meet its debt obligations. Lenders analyze a firm's current and *future* ability to meet its financial obligations. Thus, ratings agencies incorporate expectations of future profitability when assigning a rating. A firm could have solid liquidity and debt management ratios, but if ratings agencies believe future profitability is jeopardized, they could decide to lower the credit rating of a firm's outstanding debt issues.

Concept Check 3.4

1. **What do asset management ratios tell about a firm? What are the most commonly used asset management ratios?**

Asset management ratios, also called activity measures, measure the speed with which the firm can convert various accounts into sales or cash. Thus, these ratios indicate the ability to manage the firm's assets. Common used asset management ratios include the accounts receivables turnover ratio, inventory turnover ratio, accounts payables turnover ratio, fixed asset turnover ratio, and the total asset turnover ratio.

2. **What can a firm do to improve (shorten) its cash conversion cycle? Would you expect an improvement in a firm's cash conversion cycle to increase the value of the firm?**

The cash conversion cycle is the sum of the receivables collection period and inventory processing period less its accounts payable payment period. Any transaction that lowers the receivables collection period or inventory processing period or increases the accounts payable payment period would improve a firm's cash conversion cycle.

- A firm can reduce its accounts receivables collection period by more aggressively trying to collect outstanding receivables or by tightening the firm's credit policy.
- A firm can reduce its inventory processing period by employing more effective inventory management techniques that involve better forecasting of future demand and by working more closely with its suppliers.
- A firm can increase its accounts payable payment period by delaying payment to suppliers or by increasing disbursement float.

A firm can expect to increase its market value by shortening its cash conversion cycle provided the firm does not jeopardize future sales (from tightening credit policy), experience inventory stockouts (from managing its inventory too aggressively), or lose or damage its relationship with its suppliers (by lengthening the time to pay them).

3. **Suppose a retail firm's credit sales are only 5 percent of total net sales. If you assume all net sales are credit sales, how would this distort the calculation of the firm's accounts receivables turnover ratio and cash conversion cycle?**

The firm's accounts receivables turnover ratio would be biased upward and its cash conversion cycle would be lengthened. Although these biases do not usually pose a problem, analysts should exercise caution when making comparisons with other firms that may have a higher or lower percentage of credit sales.

Concept Check 3.5

1. **What do profitability ratios tell us about a firm? What are the most commonly used profitability ratios?**

Profitability ratios measure the earning power of a firm. They measure management's ability to control expenses in relation to sales and reflect a firm's operating performance, riskiness, and leverage. Some of the most commonly used profitability ratios include the gross profit margin, operating profit margin, net profit margin, return on assets, return on total equity, and return on common equity.

2. **Why will the net profit margin ratio, as defined in Equation 3.22, not provide a fair comparison between firms with similar operating profit margins but widely differing long-term debt ratios? Can you suggest a modification to Equation 3.22 that would adjust for different levels of debt financing?**

The amount of debt financing a firm employs affects the net profit margin ratio. To illustrate, consider two firms, A and B, that have identical assets and operations.

Specifically, suppose that the left-hand sides of the balance sheets are identical and both firms generate the same level of EBIT. Firm A has no debt and Firm B has debt financing and incurs interest expense. Since Firm B will incur interest expense, it will report lower net income than Firm A. Firm A will have a higher net profit margin. However, the after-tax interest expense of the firm, not by its operations, cause this difference. To adjust for differences in debt financing, some analysts add interest expense (multiplied by one minus the firm's marginal tax rate) to the numerator of the net profit margin.

3. **Why might the ROA and ROE for a firm not be an accurate measure of the firm's profitability based on its investments in assets or equity, respectively?**

The age of plant and equipment affects a firm's ROA ratio, especially during inflationary periods. If the firm's fixed assets are old and have been depreciated to a low book value, and the assets have not lost their productive ability, the low figure in the denominator will inflate ROA. In addition, the numerators in both ROA and ROE use net income as a measure of return. Net income is an accrual-based accounting measure of profit earned during the period. Thus, net income may differ substantially from the net cash flow generated during the period. Finally, the equity amount in the denominator represents the equity capital that has been invested in the firm, including reinvestment of retained earnings, but does not represent the current market value of the firm's equity investment.

4. **How can traditional DuPont analysis or extended DuPont analysis provide additional insight into changes in a firm's profitability?**

DuPont analysis provides a framework for decomposing return on equity (ROE) to assess the firm's financial condition. Analysts use the traditional DuPont analysis to attribute changes in ROE to changes in profitability (net income/sales), asset management (sales/assets), and leverage (assets/equity). Thus, the traditional DuPont formula breaks down ROE into three key components: profit margin, total asset turnover, and equity multiplier. A low ROE must be attributable to at least one of the following: (1) the company has a poor profit margin, (2) it has poor asset turnover, or (3) the firm has little leverage.

The extended DuPont analysis decomposes changes in ROE to changes in the levels of operating profits generated by sales, the sales generated from total assets, the firm's interest expense relative to its total assets, the leverage factor employed in the financing of the firm's assets, and the tax retention rate. Firms typically experience high levels of ROE when they have high profit margins, leverage, and asset turnover. The extended version of the DuPont formula indicates that more leverage does not always lead to higher ROE. When firms take on more leverage, their interest expense rate also rises. Thus, higher interest payments that accompany debt can offset the positive effects of leverage. Higher taxes lead to lower levels of ROE.

Concept Check 3.6

1. **What do market value ratios tell us about a firm? What are some commonly used market value ratios?**

Market value ratios use market data such as stock prices to provide information about the firm's relative value. Commonly used market value ratios include the price-to-earnings ratio, market-to-book value ratio, dividend yield, and dividend payout.

2. **What does a high P/E ratio suggest about a firm's future growth opportunities?**

A P/E ratio reflects the amount investors are willing to pay for each dollar of a firm's earnings. The level of the P/E ratio indicates the degree of confidence that investor's have in the future performance of a firm. Higher P/E ratios suggest greater investor confidence. Thus, a high P/E ratio suggests that investors have a high degree of certainty about the growth in the firm's future earnings.

3. **Many investment analysts define *growth* stock as firms with high P/E and market-to-book ratios. Would you expect such firms to have high or low dividend payouts? Can you name several firms with these characteristics? Would Home Depot and Lowe's be considered growth stocks?**

Growth firms typically have low dividend payouts. Since these firms need cash to finance future growth opportunities, they usually prefer to limit cash dividends to shareholders. Growth firms typically receive much attention in the financial press and are thus fairly well known. Recent growth firms in the US include Google. Home Depot and Lowe's would be considered growth stocks based on their high P/E and market-to-book ratios.

4. **Many investment analysts define *value* stocks as firms with low P/E and market-to-book ratios and high dividend payouts. Can you think of a few firms that would be labeled as value stocks? Would such stocks be attractive investments?**

Value stocks typically have higher dividend payouts than growth stocks. These firms typically have few growth opportunities and thus pay out a higher percentage of their earnings in the form of cash dividends to their shareholders. Examples of value stocks include Mult-Color, Middleby, and Tuesday Morning.

Value stocks tend to be relatively cheap compared to growth stocks. Some research studies indicate that value stocks tend to produce higher rates of return than growth stocks when measured over very long periods. That is, value, on average, outperforms growth. Over short periods, however, the attractiveness of value stocks often depends on the state of the economy. Value stocks tend to outperform growth stocks when the economy is declining or in a recession. Growth stocks tend to outperform value stocks when the economy is improving or booming.

Concept Check 3.7

1. **What are three important uses for financial ratios?**

Some of the specific uses for financial ratios include stock valuation, bond ratings, and price setting for regulated firms. Relative stock valuation models use financial ratios to estimate the value of a firm's common stock. Ratings agencies use various ratios such as the interest coverage ratio, debt ratio, current ratio, and various profitability measures

to assign a credit rating to a firm's debt issues. Regulators use performance targets such as ROE to help set the price caps for a regulated firm. In addition, analysts and investors use financial ratios to evaluate the financial condition of a firm.

2. What is the calculation of a firm's sustainable growth rate?

A firm's sustainable growth rate can be computed by multiplying the firm's ROE by its earnings retention rate. Thus, a firm's future sustainable growth depends on the percentage of earnings it retains, and the return the firm can generate on those earnings.

Concept Check 3.8

1. What are several important limitations of financial ratio analysis? How can these limitations be overcome?

Although ratios may be useful for internal comparisons and comparisons across firms, financial ratio analysis has several limitations.

- Ratios are not useful when viewed in isolation. To overcome this limitation, analysts should compare ratios to other comparable companies or to the firm's historical performance.
- Ratios are difficult to compare because of firms may use different accounting practices. This limitation is especially troublesome when analyzing non-US firms. To mitigate this problem, analysts should find companies with similar accounting practices or make appropriate adjustments to improve the comparability of the analysis.
- Ratios for companies operating in multiple industries may not be very meaningful. To overcome this problem, analysts should separate diversified firms into their component industries and find comparable industry ratios.
- Accounting data may understate the value of some assets due to its historical cost basis. To overcome this drawback, analysts should make appropriate adjustments to account for inflation and changes in market price.