Financial Statement Analysis: Ratio Analysis Exercises and Problems

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FIN520: Financial Reporting and Analysis

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March 3, 2024

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Ratio analysis is a quantitative method used to gain insights into a company's financial health by examining its financial statements, such as the balance sheet and income statement. Ratio analysis compares line-item data from a company's financial statements to reveal profitability, liquidity, operational efficiency, and solvency insights. It helps assess a company's performance over time and compare it to those within the same industry or sector. External parties often use ratios to set benchmarks tied to risk. Ratios are comparison points for companies. They evaluate stocks within an industry and measure a company against its historical numbers. Understand the variables driving ratios, as management can alter strategies to make ratios more attractive. Consider ratios from different angles to spot potential red flags.

This paper contains Earnings ratios: Earnings to fixed charges, cash flow to fixed charges, and earnings coverage of preferred dividends. We will use Summer Peebles, Inc.'s financial statement ($ thousands) for the year ending December 31, 2015. Blow the Excel table to indicate all the values.

Figure 1: Summer Peebles Inc.'s income statement for the year 2015.

Summer Peebles, Inc. Consolidated Income Statement ($ thousands)		
Sales		$15,000
Undistributed Income of Less Than 50% Owned Affiliates		$ 300.00
Total Revenue		$ 15,300.00
Cost of Goods Sold	$7,000.00	
Selling and Administrative Expenses	$2,000.00	
Depreciation	$ 600.00	
Rental Expense	$ 500.00	
Share of Minority Interest in Consolidated Income	$ 200.00	
Interest Expense	$ 400.00	$ (10,700.00)
Income Before Taxes		$ 4,600.00
Income Taxes		
Current	$ 900.00	
Deferred	$ 400.00	$ (1,300.00)
Net Income		$ 3,300.00
Less Dividends		
Common Stock	$ 300.00	
Preferred Stock	$ 400.00	$ (700.00)
Earning Retained for the Year		$ 2,600.00

Figure 2: Summer Peebles Inc.'s additional financial information for 2015.

The following changes amount in current assets and current liabilities for 2015

Current Acounts	Increase (Decrease)
Account Receivable	$ 900.00
Inventories	$ (800.00)
Dividend Payable	$ (100.00)
Notes Payable to Bank	$ (200.00)
Accounts Payable	$ 700.00
Tax rate	40%

Shares of minority interests in consolidated income do not have fixed charges.

Interest Expense inclued

Expenses	
Interest Incurred(Expect Items Below)	$ 600.00
Amortizon of Bond Premium	$ (300.00)
Interest on Capitalized Leases	$ 140.00
Interest Incured	$ 440.00
Less Interset Capitalized	$ (40.00)
Interest Expense	$ 400.00

Amortization of previously capitalized interest (inclued in depreciation) is $60

Interest implicit in operating lease rental payment (inclued in retal expense) is $120

1. **Earnings to Fix-Charge Ratio**

The Earnings to Fixed-Charge Ratio is a financial metric that assesses a company's ability to cover its fixed charges, including lease payments, salaries, and other recurring expenses. "The relation of earnings to fixed charges is part of earnings coverage analysis. Earn-ings coverage measures focus on the relation between debt-related fixed charges and a company's earnings available to meet these charges."(Subramanyam,2014) Lenders often use this ratio to evaluate a company's creditworthiness and financial stability. It's essential to compare this ratio with industry benchmarks and historical data to assess the company's overall economic health. Higher ratios generally indicate better financial stability, but it's crucial to consider other factors. Here's how to calculate:

$$\text{Earning to Fixed Charges Ratio} = \frac{Earnings\ Available\ for\ Fix\ Charges}{Fixed\ Charges}$$

Earnings to Fixed Charges Ratio =

$$\frac{\begin{array}{c} Pre\ tax\ income\ from\ continuing\ operation(EBIT)+Interest\ expense+ \\ +Amortization\ of\ debt\ expense\ and\ discount\ or\ premium \\ +Interest\ part\ of\ operating\ rental\ expenses \\ +Tax-adjusted\ preferred\ stock\ dividend\ requirements\ of \\ majority-owned\ subsidiaries \\ +Amortization\ of\ prior\ capitalized\ interest \\ -Undistributed\ income\ of\ less\ than\ 50\%-owned\ subsidiaries\ or\ affiliates \end{array}}{\begin{array}{c} Total\ Interest\ incurred \\ +Amortization\ of\ debt\ expense\ and\ discount\ or\ premium \\ +Interest\ portion\ of\ operating\ rental\ expenses \\ +Tax-adjusted\ preferred\ stock\ dividend\ requirements\ of \\ majority-owned\ subsidiaries \end{array}}$$

$$= \frac{\$4,600+\$400+\$120+\$60-\$300}{\$440+\$120}$$

$$= \frac{\$4,800}{\$560} = 8.71$$

Thus, the Earnings to Fixed Charges Ratio (EFCCR) of 8.71 indicates a strong financial position for the company. Let's break it down:

- ✓ The EFCCR measures a company's ability to cover its fixed charges (lease payments, salaries, and other recurring expenses) with its earnings before interest and taxes (EBIT).
- ✓ An EFCCR above 1 indicates that the company generates sufficient earnings to cover its fixed costs.
- ✓ In Summer Peebles Inc.'s case, an EFCCR of 8.71 means the company's earnings are 8.71 times greater than its fixed charges. This is a positive sign, as it shows a healthy financial situation.

2. **Cash Flow to Fixed Charges Ratio**

The Cash Flow to Fixed Charges Ratio (CFCCR) is a financial metric that assesses a company's ability to cover its fixed charge obligations using its available cash flow. The CFCCR helps evaluate a company's financial health by comparing its cash flow (specifically, operating cash flow) to its fixed charges. A high CFCCR indicates that the company generates sufficient cash flow to meet its fixed obligations comfortably. The formulate for calculating:

Cash Flow to fixed Charges Ratio =

$$\frac{\begin{gathered}(\,Pre\ tax\ income\ from\ continuing\ operation(EBIT)\\ +Depreciation\\ -\ Amortization\ of\ bond\ premium\\ +\ Share\ of\ minority\ interest\ income\\ -Undistributed\ income\\ -Increase\ in\ receivables\\ +Increase\ in\ inventory\\ +Increase\ in\ accounts\ payables\\ +Interest\ expenses\\ +Premium\ amortization\\ +Interest\ part\ of\ capital\ leaseing)\end{gathered}}{\begin{gathered}Interest\ incurred\\ +Interest\ part\ of\ capital\ leasing\end{gathered}}$$

$$= \frac{\begin{gathered}(\$4600+\$600-\$300+\$200-\$300-\$900+\$800\\ +\$700+\$400+\$300+\$120)\end{gathered}}{(\$440+\$120)}$$

$$= \frac{\$6{,}220}{\$560}$$

= 11.10

Thus, the Cash Flow to Fixed Charges Ratio (CFCCR) of 10.75 indicates the company's strong financial position. Let's dissect it:

- ✓ The CFCCR measures the company’s ability to cover its fixed charges (such as interest payments on debt, lease payments, and other contractual obligations) using its available cash flow.
- ✓ An EFCCR above 1 indicates that the company generates sufficient cash flow to meet its fixed obligations comfortably.
- ✓ An EFCCR of 10.75 means that Summer Peebles Inc.’s cash flow is 10.75 times greater than its fixed charges. This is an excellent sign, as it shows robust financial health.

3. Earnings Coverage of Preferred Dividends

The Preferred Dividend Coverage Ratio (PDPR) is a financial measure that assesses a company’s ability to pay the dividends owed to its preferred shareholders based on net income. The PDPR gives investors and analysts an idea of a company’s ability to meet its obligation to pay dividends to preferred shareholders. Preferred shares come with a defined dividend set in advance and cannot be changed. These shares are similar to bonds in terms of being an income-producing investment. The PDPR helps evaluate the company’s financial health and capacity to cover preferred dividend requirements. The formula for the Preferred Dividend Coverage Ratio:

Earnings Coverage of Preferred Dividends =

$$\frac{(\text{Pre tax income } (EBIT) + \text{Interest expense} + \text{Interest part of operating rental expenses} + \text{Amortization of prior capitalized interest} - \text{Undistributed income})}{(\text{Interest incurred} + \text{Interest part of operating rental expenses}) + \left(\frac{\text{Preferred dividends}}{(1 - \text{tax rate})}\right)}$$

$$= \frac{(\$4,600+\$400+\$120+\$60-\$300}{(\$440+\$120)+(\frac{\$400}{(1-40\%)})}$$

$$= \frac{\$4,800}{\$560+\$666.67}$$

= 3.98

Thus, the Earnings Coverage of Preferred Dividends ratio of 3.98 indicates that the company’s net income is 3.98 times greater than the required dividends for preferred shareholders. This suggests a healthy financial position and the ability to cover the fixed dividend obligations owed to preferred shareholders comfortably.

References

Subramanyam, K.R., & Wild, J. (2007). *Financial statement analysis* (1st ed.). McGraw-Hill. McGraw-Hill Higher Education.

Hayes, A. (2022). *Fixed-Charge Coverage Ratio (FCCR): Examples, Formula, Meaning.* https://www.investopedia.com/terms/f/fixed-chargecoverageratio.asp