Introduction to Finance

L5

Financial Statement Analysis

- Investors often use accounting statements to evaluate a firm in one of two ways:
  1. Compare the firm with itself by analyzing how the firm has changed over time.
  2. Compare the firm to other similar firms using a common set of financial ratios.

- The most commonly used ratios for financial analysis are as follows :
  1. Profitability ratios
  2. Liquidity ratios
  3. Working capital ratios
  4. Interest coverage ratios
  5. Leverage ratios
  6. Valuation ratios

Profitability Ratios

- Profitability ratios are mostly derived from the income statement (P&L a/c)
- The income statement provides very useful information regarding the profitability of a firm's business and how it relates to the value of the firm's shares.
- The **gross margin** of a firm is the ratio of gross profit to sales revenue:
- $$\text{Gross Margin (GM)} = \frac{Gross\ Profit}{Sales}$$
- A firm's gross margin reflects its ability to sell a product for more than the cost of producing it.

Profitability Ratios

- The **Operating margin** of a firm is the ratio of operating Income to sales :
- $$\text{Operating Margin (OM)} = \frac{Operating\ Income}{Sales}$$
- The operating margin reveals how much a company earns before interest and taxes from each dollar of sales.

Profitability Ratios

- The **EBIT margin** of a firm is the ratio of earnings before interest and taxes (EBIT) to sales :
- $$EBIT\text{ Margin } = \frac{EBIT}{Sales}$$
- By comparing operating margin or EBIT margin across firms within an industry, we can assess the relative efficiency of the firms' operations
- However, sometimes differences in profitability can be the result of corporate strategy, than efficiency of operations.
- For example, if in 2021, high-end retailers Reliance Retail had an EBIT margin of 22%; whereas Dmart had an EBIT margin of only 4.5%. In this case, Dmart's lower operating margin was not a result of its inefficiency. Rather, the low operating margin is part of Dmart's strategy of offering low prices to sell common products in high volume.

Profitability Ratios

- The **Net profit margin** of a firm is the ratio of net income to sales :
- $$\text{Net Profit Margin} = \frac{Net\ Income}{Sales}$$
- The net profit margin reveals how much a company earns after interest and taxes from each dollar of sales.
- The net profit margin shows the fraction of income that is available to equity holders after the firm pays interest and taxes.
- One must be cautious when comparing net profit margins: While differences in net profit margins can be due to differences in efficiency, they can also result from differences in leverage, which determines the amount of interest expense, as well as differences in accounting assumptions.

Income Statement: Profitability ratios (in percentage)

- Gross Margin ?
- Operating Margin?
- EBIT margin?
- Net Profit Margin?

GLOBAL CONGLOMERATE CORPORATION

Income Statement
Year Ended December 31 (in $ million)

	2022	2021
Total sales	186.7	176.1
Cost of sales	(153.4)	(147.3)
Gross Profit	33.3	28.8
Selling, general, and administrative expenses	(13.5)	(13.0)
Research and development	(8.2)	(7.6)
Depreciation and amortization	(1.2)	(1.1)
Operating Income	10.4	7.1
Other income	—	—
Earnings Before Interest and Taxes (EBIT)	10.4	7.1
Interest income (expense)	(7.7)	(4.6)
Pretax Income	2.7	2.5
Taxes	(0.7)	(0.6)
Net Income	2.0	1.9
Earnings per share:	$0.556	$0.528

Income Statement: Profitability ratios (in percentage)

- Gross Margin = 33.3/186.7=17.8%
- Operating Margin= 10.4 / 186.7= 5.57 %
- EBIT margin=5.57%
- Net Profit Margin== 2/ 186.7=1.07%

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Liquidity Ratios

- Liquidity Ratios derived from information in firms **Balance Sheet**. It helps to assess firm’s solvency or liquidity.

Liquidity Ratios

- The **current ratio** of a firm is the ratio of current assets to current liabilities :

$$\boldsymbol{Current\ Ratio\ (CR) = \frac{Current\ Assets}{Current\ Liabilities}}$$

- creditors often compare a firm's current assets and current liabilities to assess whether the firm has sufficient working capital to meet its short-term needs.

- A more stringent test of the firm's liquidity is the **quick ratio**, which compares only cash and "near cash" assets, such as short-term investments and accounts receivable, to current liabilities.

$$\boldsymbol{Quick\ Ratio\ (QR) = \frac{Most\ liquid\ Assets}{Current\ Liabilities} = \frac{Cash+Bank+Short\ term\ investment+Accounts\ receivable}{Current\ Liabilities}}$$

- A higher current or quick ratio implies less risk of the firm experiencing a cash shortfall in the near future.
- A reason to exclude inventory is that it may not be that liquid; indeed an increase in the currentratio that results from an unusual increase in inventory could be an indicator that the firm is having difficulty selling its products.

Liquidity Ratios

- Ultimately, firms need cash to pay employees and meet other obligations.
- Running out of cash can be very costly for a firm, so firms often gauge their cash position by calculating the **cash ratio**, which is **the most stringent liquidity ratio**:
- $$\boldsymbol{Cash\ \ Ratio = \frac{Cash}{Current\ Liabilities}}$$

Liquidity Ratios- Limitation

- All of these liquidity ratios are limited in that they only consider the firm’s current assets. If the firm is able to generate significant cash quickly from its ongoing activities, it might be highly liquid even if these ratios are poor.

Balance Sheet: Liquidity ratios

- Current ratio?
- Quick ratio?
- Cash ratio?

GLOBAL CONGLOMERATE CORPORATION

Consolidated Balance Sheet
Year Ended December 31 (in $ million)

Assets	2022	2021	Liabilities and Stockholders' Equity	2022	2021
Current Assets			**Current Liabilities**		
Cash	21.2	19.5	Accounts payable	29.2	24.5
Accounts receivable	18.5	13.2	Notes payable/short-term debt	3.5	3.2
Inventories	15.3	14.3	Current maturities of long-term debt	13.3	12.3
Other current assets	2.0	1.0	Other current liabilities	2.0	4.0
Total current assets	57.0	48.0	Total current liabilities	48.0	44.0
Long-Term Assets			**Long-Term Liabilities**		
Land	22.2	20.7	Long-term debt	99.9	76.3
Buildings	36.5	30.5	Lease obligations	—	—
Equipment	39.7	33.2	Total debt	99.9	76.3
Less accumulated depreciation	(18.7)	(17.5)	Deferred taxes	7.6	7.4
Net property, plant, and equipment	79.7	66.9	Other long-term liabilities	—	—
Goodwill and intangible assets	20.0	20.0	Total long-term liabilities	107.5	83.7
Other long-term assets	21.0	14.0	**Total Liabilities**	**155.5**	**127.7**
Total long-term assets	120.7	100.9	**Stockholders' Equity**	**22.2**	**21.2**
Total Assets	**177.7**	**148.9**	**Total Liabilities and Stockholders' Equity**	**177.7**	**148.9**

Balance Sheet: Liquidity ratios

- Current ratio= 48/44 (1.09-2021) and 57/48=1.19 in 2022
- Quick ratio (2022) = (21.2 + 18.5)/48=0.83
- Cash ratio (2022)= 21.2/48 = 0.44

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