

## Uses and Limitations of Profitability Ratio Analysis in Managerial Practice

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*Abstract: The evaluation of profitability performance appears an important lesson for our managers. Numerical measures of performance are valuable tools, but their use must be kept in perspective. It is short-sighted to manage strictly by the numbers. Executives need to take broader, more qualitative view of the evaluation process. Firms are too complicated to allow the substitution of mechanical rules for creative thought. In my paper will be presented the quantitative and qualitative approach to the profitability ratio analysis, as well as the uses and limitations of profitability ratios in managerial practice.*

### 1 Profitability Ratios

Profitability ratios reveal the company's ability to earn a satisfactory profit and return on investment. The ratios are an indicator of good financial health and how effectively the company in managing its assets.

**Return on Total Assets.** The ratio of net income to total assets measures the **return on total assets (ROA)** after interest and taxes. The ratio indicates the efficiency with which management has used its resources to obtain income:

$$\text{Return on total assets (ROA)} = \frac{\text{Net profit after taxes}}{\text{Total assets}}$$

**Return on Common Equity.** The ratio of net income after taxes to common equity measures the return earned on the common stockholder's investment.

$$\text{Return on common equity (ROE)} = \frac{\text{Net profit after taxes}}{\text{Common equity}}$$

ROE is a measure of the efficiency with which the firm employs owner's capital. It is an estimate of the earnings of invested equity capital, or alternatively, the percentage return to owners on their investment in the firm.

## 2 Three Determinators of ROE – The Du Pont System

Figure 1 which is called a Du Pont chart, shows the relationships between return on investment, assets turnover, and the profit margin. The left-hand side of the chart develops the *profit margin on sales*. If the profit margin is low or trending down, the manager can examine the individual expense items to identify and then correct the problem.

The right-hand side of Figure 1 presents the various categories of assets and then divides sales by total assets to find the number of times the firm 'turns its assets over' each year.

The profit margin times the total assets turnover is called the **Du Pont equation**, and it gives the rate of return on assets (ROA):

$$\begin{aligned} \text{ROA} &= \text{Profit margin} \times \text{Total assets turnover} \\ &= \frac{\text{Net profit after taxes}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}} \end{aligned}$$

If the company had used only equity, the rate of return on assets would have equated the rate of return on equity. Specifically, the rate of return on assets (ROA) must be multiplied by the *equity multiplier*, which is the ratio of assets to common equity, to obtain the rate of return on equity (ROE):

$$\begin{aligned} \text{ROE} &= \text{ROA} \times \text{Equity multiplier} \\ &= \frac{\text{Net profit after taxes}}{\text{Total assets}} \times \frac{\text{Total assests}}{\text{Common Equity}} \end{aligned}$$

This formula enables the company to break its ROE into a profit margin portion /net profit margin/, an efficiency-of-asset-utilization portion /total assets turnover/, and a use-of-leverage portion /equity multiplier/.

### 3 Is ROE a Reliable Financial Indicator?

Until now we have assumed that management wants to increase its ROE, and we have presented three important levers of financial performance: profit margin, assets turnover, and financial leverage. We concluded that whether a company is a big one or small one, careful management of these levers can positively affect ROE. We also saw that determining and maintaining appropriate values of the levers is a challenging managerial task, involving an understanding of the nature of the company's business, and the interdependencies among the levers.

The question is: how reliable measure of financial performance is ROE? If Company A has a higher ROE than Company B, is its financial performance necessarily superior? If Company C increases its ROE, is it an evidence of improved financial performance?

As a measure of financial performance, ROE is prone to three problems: a timing problem, a risk problem, and a value problem. These problems mean that ROE is seldom an unambiguous measure of performance. ROE remains a useful and important indicator, but it must be interpreted in light of its limitations and no analyst should mechanically infer that a higher ROE is always better than a lower one.

#### *The Timing Problem*

Many business opportunities require the sacrifice of present earnings in anticipation of future earnings. This is true when a company introduces a new product involving high start-up costs. If we calculate the company's ROE after introduction of the new product, the ROE is low. But rather than suggesting poor performance, the low ROE is the result of the company's new product introduction. Because ROE necessarily includes earnings for only one year, it frequently fails to capture the full impact of longer-term decision.

#### *The Risk Problem*

The problem with ROE is that it says nothing about what risks a company has taken to generate its ROE. Because ROE looks only at return while ignoring risk, it can be an inaccurate indicator of financial performance.

#### *The Value Problem*

ROE measures the return on shareholder's investment, but the investment figure used is the *book value* of shareholder's equity, not the *market value*. Because of possible divergence between the market value of equity and its book value, a high ROE may not be synonymous with a high return on investment to shareholders.

If there are no universally correct values for ratios, how to interpret them? How to decide whether a company is healthy or sick? There are three approaches: to compare the ratios to rules of thumb, to compare them to industry averages, or to

look for changes in the ratios over time. Comparing a company's ratios to rules of thumb is simple, but has little to recommend it conceptually. The appropriate values of ratios for a company depend too much on the analyst's perspective and on the company's specific circumstances for rules of thumb. The most positive thing to be said in their support is that over the years, companies implementing these rules of thumb tend to go bankrupt less frequently than those that do not.

Comparing a company's ratios to industry ratios provides a useful instrument how the company measures up to its competitors. But it is still true that company-specific differences can result in deviations from industry norms.

The most useful way to evaluate ratios involves trend analysis: to calculate ratios for a company over several years and to take note of how they change over time. Trend analysis avoids cross-company and cross-industry comparisons, enabling the analyst to make conclusions about the firm's financial health and its variation over time.

#### **4 Uses and Limitations of Profitability Ratio Analysis**

Ratio analysis is used by three main groups: (1) *managers* who employ ratios to help analyze, control, and thus improve the firm's operations; (2) *credit analysts*, such as bank loan officers or credit managers, who analyze ratios to help ascertain a company's ability to pay its debts; and (3) stock analysts, who are interested in a company's efficiency and growth prospects.

Thought ratio analysis can provide useful information concerning a company's operations and financial condition, it has some limitations. Potential problems are listed below:

- 1 Many large firms operate a number of different activities in quite different industries, and in such cases it is difficult to develop a meaningful set of industry averages for comparative purposes. This tends to make ratio analysis more useful for small, narrowly-focused firms than for large, multidivisional firms.
- 2 Most firms want to be better than average (although half will be above and half below the median), so to attain average performance is not necessarily good. As a target for high-level performance, it is preferable to look at the industry leaders' ratios.
- 3 Inflation can badly distort firms' balance sheets - recorded values are often substantially different from 'true' values. Because this affects both depreciation charges and inventory costs, profits are also affected. Thus, a ratio analysis for one firm over time, or a comparative analysis of different firms, must be interpreted with care and judgement.

- 4 Seasonal factors can also distort ratio analysis. For example, the inventory turnover ratio for a food processor will be different if the balance sheet figure used for inventory is just before, or just after the close of the canning season. This problem can be minimized by using monthly averages for inventory when calculating ratios such as turnover.
- 5 Different operating and accounting practises can distort comparisons. For example, inventory valuation and depreciation methods can affect the financial statements and thus distort comparisons among firms that use different accounting procedures. Also, if one firm leases a substantial amount of its productive equipment, then its assets may be low relative to sales because leased assets often do not appear on the balance sheet. At same time, the lease liability may not be shown as a debt, so leasing can artificially improve both the debt and turnover ratios.
- 6 It is difficult to generalize about wheter a particular ratio is ‚good‘ or ‚bad‘. For example, a high current ratio may indicate a strong liquidity position, which is good, but excessive cash is bad, because excess cash in the bank is nonearning asset. Similarly, a high fixed assets turnover ratio may indicate either a firm that uses assets efficiently or a firm that is undercapitalized and simply cannot afford to buy enough assets.
- 7 A firm may have some ratios which look ‚good‘ and others which look ‚bad‘, making it difficult to tell wheter the company is in a strong or weak position. However, statistical procedures can be used to analyze the effects of a set of ratios. Many banks and other lending organizations use statistical procedures to analyze firms` financial ratios, and on the basis of their analyses, classify companies according to their probability of getting into financial distress.

Profitability ratio analysis is useful, but analysts should be aware of these problems. Ratio analysis applied in a mechanical, unthinking manner is dangerous; however, used intelligently and with good judgement, it can provide useful insights into a firm`s operations

### **Conclusions**

Profitability ratio analysis is widely used by managers, creditors and investors. Used with care and imagination, the technique can reveal much about a company and its operations. But there are a few things to take in mind about ratios. First, a ratio is just one number divided by another, so it is unreasonable to expect that the mechanical calculation of one ratio, or even several ratios, will automatically yield important insights into a firm. It is useful to think about ratios as in a detective story. One or even several ratios might be misleading, but when combined with other knowledge of a company`s management and economic circumstances, profitability ratio analysis can tell us very much.

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