

In both formulae financial leverage is defined as the proportion of total assets acquired with funds supplied by the shareholders. It measures how many euro of assets are employed for each euro invested by shareholders. Financial leverage will increase if debt financing increases or if part of the shares outstanding are repurchased. The essential message of the ROE decomposition is that both financial leverage and ROA are drivers of the return to shareholders: debt financing can be used to lever shareholder profitability.

A related, but somewhat different, concept is the *financial leverage coefficient* ratio, defined as ROE divided by ROA:

$$\text{Financial leverage coefficient} = \text{ROE\%} / \text{ROA\%}$$

Leverage is positive (or financial leverage coefficient greater than one) if the company's rate of return on total assets exceeds the average after-tax interest rate on its debt. In that case, the company lends money at one rate and uses that money productively at a higher rate of return. The excess of the after-tax rate of return on assets and the after-tax interest rate on the borrowed funds, accrues to the benefit of the shareholders. Note that financial leverage can be a disadvantage too: if the company does not succeed to earn a rate of return on assets which is higher than the after-tax cost of debt, the shareholders will have to support the deficit.

Debt financing will increase the financial leverage effect. If leverage is positive, the financial leverage coefficient will increase with gearing. We illustrate this effect in Table 17.1 under three different gearing assumptions with total assets, ROA and after-tax cost of debt being held constant.

The higher the debt/equity ratio, the higher the effect (positive or negative) of debt financing on the ROE. Note that in this scenario analysis we kept the cost of debt constant. In practice, however, increasing gearing will undoubtedly have an effect on the cost of debt too. Increased debt financing will bring lenders to demand a higher risk premium and, thus, a higher interest rate, possibly up to the level where leverage becomes negative (financial leverage coefficient 1).

Combining ROI decomposition and financial leverage brings us to the following overall model (also called the DuPont model):

$$\text{ROE} = \text{Net profit margin} \times \text{Asset turnover} \times \text{Financial leverage}$$

or:

$$\frac{\text{Net profit for the period}}{\text{Equity}} = \frac{\text{Net profit for the period}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}} \times \frac{\text{Total assets}}{\text{Equity}}$$

This model allows an integrated profitability analysis with the three factors as profit drivers and by linking these to underlying competitive mechanisms and managerial coping behaviour.