

Financial analysis

by Patrick Galig / Henley Business School / HB 41 / Managing Financial resources

Profitability ratios

Return on net assets (**RONA**) = $\frac{\text{profit before interest and tax}}{\text{total assets less current liabilities}} \times 100$ (mainly used in the UK)
Return on capital employed (ROCE)

EBITDA = Earnings before interest, tax, depreciation, amortisation

Return on total assets (**ROTA**) = $\frac{\text{Profit before interest payable and tax (PBIT)}}{\text{total assets}} \times 100$
Return on capital employed (ROCE) The higher the better, fall because change of profit or assets
 change in PQS or SGR has impact on ROTA

Return on sales (**ROS**) = $\frac{\text{Profit before interest payable and tax (PBIT)}}{\text{sales (Revenue)}} \times 100$
Profit margin = pence per 1\$ revenue Profit margin --> the higher the better the margin
 e.g. 4.5% means that 4.5 pence per 1\$ revenue generated
 might hide loss in certain product lines as it takes entire revenue

Analysis of how ROS can be splitted

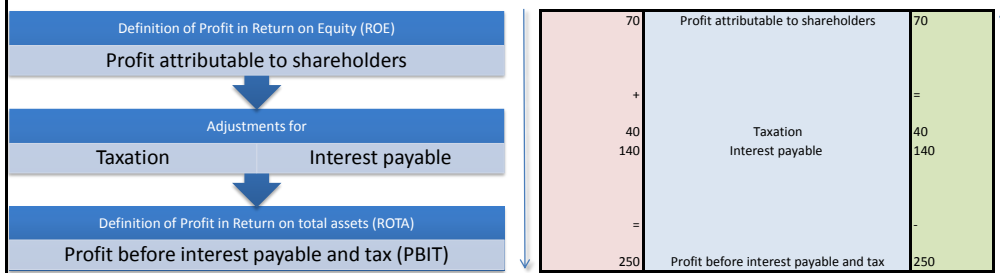
Cost of sales	sales
Admin cost	sales
Other cost	sales

might be interesting if business is low margin because costs the are critical to profit

Sales generation ratio (**SGR**) = $\frac{\text{sales}}{\text{total assets}}$
sales per 1\$ assets The higher the better, changes due to change in sales or assets
 (current assets or non-current assets)

Analysis of how sales generation ratio can be splitted

sales	non-current assets
sales	current assets



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Liquidity Ratios

Working capital cycle



Current ratio <i>(Liquiditätsgrad 3), should be > 2</i>	$\frac{\text{Current assets}}{\text{Current liabilities}}$	How much of the financial obligation falling due within 1 years can be met (best is > 2, but consider assets and liabilities)
Liquid ratio <i>(Acid test, Liquiditätsgrad 2)</i>	$\frac{\text{Current assets} - \text{inventory}}{\text{Current liabilities}}$	How much of the financial obligations falling due within 1 years can be paid without having to liquidate inventory (short term ability = 13 weeks)
Cash ratio <i>(Liquiditätsgrad 1)</i>	$\frac{\text{Cash}}{\text{Current liabilities}}$	How much of the financial obligations falling due within 1 year can be paid with cash (no trade receivables)
Inventory turn	$\frac{\text{Cost of sales}}{\text{Inventory}}$	The higher the better, if too low the too much inventory (costs, obsolescence etc.)
Stock days	$\frac{\text{Inventory} \times \text{Number of days in period}}{\text{Cost of sales for the period}}$	The lower the better --> less capital is tied up within working capital
Trade receivables days <i>(Debtor days)</i>	$\frac{\text{Trade receivable} \times \text{Number of days in period}}{\text{sales in period}}$	How does it take until the debtors (trade receivables) pay the invoice The less the better (good credit control) --> capital available to invest Age analysis important = <30days, 30-60days, 60 days > (the longer outstanding the higher the likelihood that payment will be made)
Trade payable days <i>(creditor days)</i>	$\frac{\text{Trade payables} \times \text{Number of days in period}}{\text{cost of sales in period}}$	The higher the better, as capital remains within company, in general trade payables days should be higher than trade receivables days

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Gearing / Leverage ratios

It is reasonable to have a combination of debts and equity to decrease capital cost.

Gearing / Leverage = Verschuldungsgrad depends on business risk (same for all companies) and financial risk (individual, as choice of between equity & debt)

Loan is interesting as interest can be deducted from profit --> less profit, less tax

Borrowing ratio	$\frac{\text{Total borrowings (sum of short and long term loans)}}{\text{Equity}}$	The higher the higher the risk for the company as it can't pay its loans Especially when there are increases in interests etc.
Income gearing (Interest cover)	$\frac{\text{Interest payable}}{\text{Profit before interest payable and taxes}}$ $\frac{\text{PBIT}}{\text{Interest payable}}$	The higher the more profit is required to pay the interests. Relation between profit and interest payable --> the higher the better
Gearing	$\frac{\text{Total assets}}{\text{Equity}}$ $\frac{\text{Debt (current and long term liabilities)}}{\text{Equity}}$	Can be expressed as Equity / total assets as %
Debt ratio	$\frac{\text{Debt}}{\text{Equity}} \times 100$	
Gearing ratio	$\frac{\text{Long term debt (long term liabilities)}}{\text{Equity}} \times 100$	

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Employee ratios

Profit per employee	$\frac{\text{Profit before taxation (PBT)}}{\text{Number of employees}}$	The higher the better
Profit per employee per 1000 £ remuneration	$\frac{\text{Profit before taxation (PBT)}}{\text{Employee remuneration}} \times 1000$	The higher the better
Sales per employee	$\frac{\text{Sales}}{\text{Number of employees}}$	The higher the better
Fixed assets per employee	$\frac{\text{Fixed assets}}{\text{Number of employees}}$	
Borrowings per employee	$\frac{\text{Total borrowings}}{\text{Number of employees}}$	Compare with other competitor or year to ensure company is not overstaffed or doesn't make use of sufficient financing

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Investor ratios

Earning per share (EPS) <small>Required by FRS 14 (only requirement accounting ratio)</small>	$\frac{\text{Profit attributable to shareholders}}{\text{Number of shares}}$	PAS = Earnings - taxation, minority interests, preference dividends Basis for further measures, key measure of performance Be aware of e.g. increased profit due to new capital from debts
Price earnings ratio (PE)	$\frac{\text{Market price of share}}{\text{Earnings per share (EPS)}}$	Outlook of how the market will value the company's future earnings
Net assets per share	$\frac{\text{Net assets (Current \& Non-current assets - liabilities)}}{\text{Number of shares}}$	Can be compared against the market price of a share Important to highlight if market price of share falls significantly
Dividend per share (DPS)	$\frac{\text{Gross dividend}}{\text{Number of shares}}$	Can be compared to EPS to find out how much of the "earnings" is paid out as a dividend (EPS / DPS)
Dividend yield	$\frac{\text{Dividend per share (DPS)}}{\text{Market price on a share}}$	Provides an indication about the return on an investment , the higher the better
Dividend cover	$\frac{\text{Earning per share (EPS)}}{\text{Dividend per share (DPS)}}$	

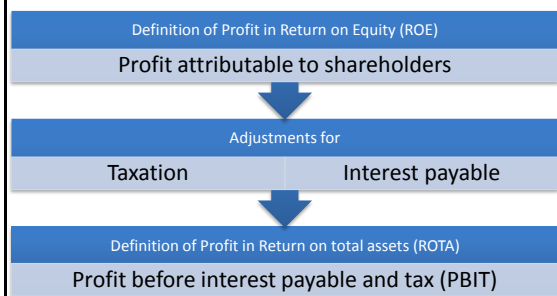
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Corporate ratios

Only available for quoted companies --> not applicable to small not quoted companies

Market to book (MB ratio)	$\frac{\text{Market value of equity}}{\text{Book value of equity}}$ <p>Market value of equity = Capitalisation (Market price of share x Number of share issued)</p> <p>Book value of equity = Shareholders funds (Sum of issued share capital + reserves)</p>	Indication about financial position perceived by market Should be > 100 %
Price earning ratio (PE)	$\frac{\text{Market value of equity}}{\text{Profit attributable to shareholders}}$	
Return on equity (ROE) (book value)	$\frac{\text{Profit attributable to shareholders}}{\text{Book value of equity}}$	"Shareholder profitability" based on book value
Return on equity (ROE) (market value)	$\frac{\text{Earnings per Share (EPS)}}{\text{Market price of share}}$	calculated on market value



70	Profit attributable to shareholders	70
+		=
40	Taxation	40
140	Interest payable	140
=		-
250	Profit before interest payable and tax	250

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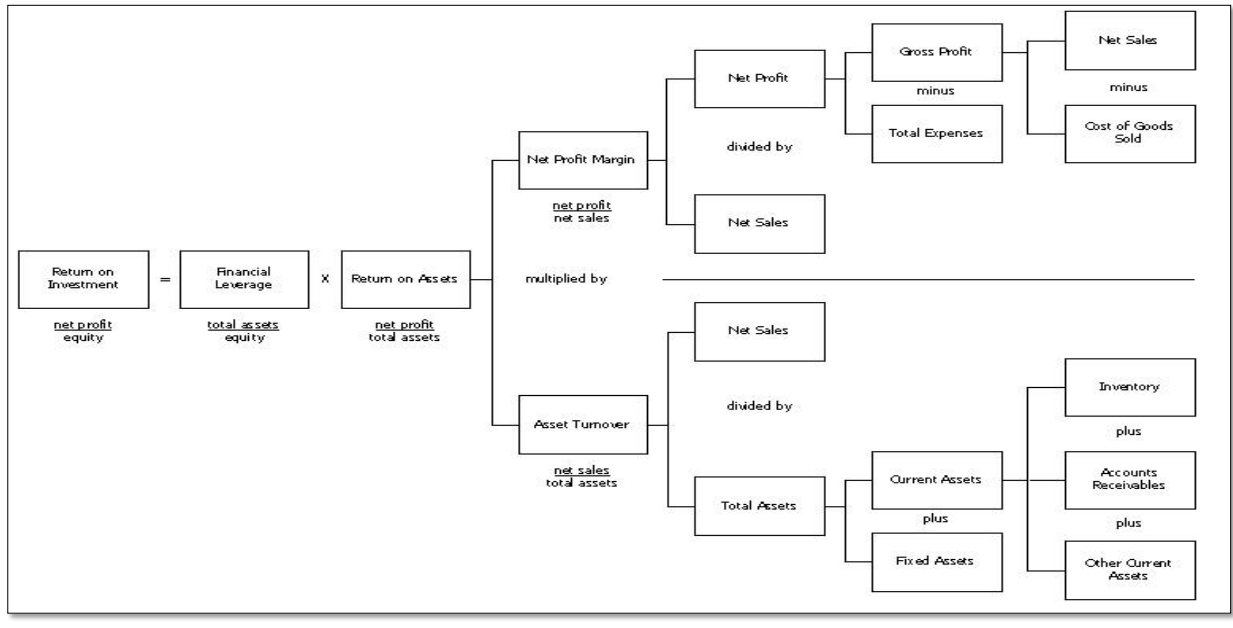
Return on investment

Profit expressed in relation to investment

$$\frac{\text{Profit}}{\text{Investment}}$$

Influenced by : depreciation, Asset life, Transfer pricing, Divisional projects, Industry conditions

DuPont model



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Diary of events (how to interpret information)

- | | |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Audit report | Have the accounts been accepted or have they been qualified? |
| 2. Directors | Movement in key personnel? Who are non-executive directors and what's their background? |
| 3. Trading stability / instability | Is the company focussed? Any comments about marketplace? Best or worst year in company? Growth steadily or over trading
Any issues with working capital? |
| 4. Borrowings | Fixed or floating charge? How many banks are used? |
| 5. Fixed (non-current assets) | Any issues selling of key assets? Over commitment to big project? |
| 6. Accounts | Delay of creditors? Delay of annual report? |
| 7. Revenue / Profit by activity | Any significant change? |
| 8. Capital expenditure | Organic growth? Acquisition growth? |
| 9. Accounting policy and treatment | Any changes in policies (goodwill, depreciation etc.) |

Movements in	2003	2004	2005
Revenue			
Non current assets			
Borrowings %			
Shops			
Acquisitions			
Disposals			
Directors			
Resignations			
Appointments			

Common size statement start with a year and calculate changes from that year on (Year x = 100) financial data e.g. from balance sheet
Cost analysis statement changes in income and cost year-on-year

Profitability ratios	First choice	PBT / Total assets	PBT / Sales	Sales / Total assets
	Second choice	PBT / TA - CL	PBT / Sales	Sales / TA- CL
	Third choice	PBIT / TA - CL	PBIT / Sales	Sales / TA- CL

Working capital ratios / Liquidity	Current ratio	Liquid ratio	Cover for creditors	
Gearing ratio	Borrowing ratio	Income Gearing	Third gearing ratio	Fourth gearing ratio
Employee ratio	Profit per employee	Sales per employee	NC Assets per employee	Borrowings per employee
				Staff costs per employee

Non-Financial indicators **Argenti's A score -->** Defects from Management, Accountancy systems, Change
Mistake for failure due to Over-gearing, Over-trading, The "big" project or contract
Symptoms of failure recognizable through Financial signs, Creative accounting, Other signs

Argenti's failure framework -> Scores above 25 are leading to failure, good framework for "RISK"

Altman Z Score $Z = 1.2x_1 + 1.4x_2 + 3.3x_3 + 0.6x_4 + 1x_5$ (just for manufacturing, developed in the 1960's)
where x are some ratios

Economic Added Value Driver Tree



Legende:

(Konstante)

(Subtraktion)

(Addition)

(Multiplikation)