these analysis is focusing short term
next year!

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Accounting, Finance & Control

Analysis of the Leverage

corporate finance => find right
balance between these two

risk capital => .share
debt capital => bank, crowd, bond holder
cost of these moneys are different

the ration between liablity and equity
debt to equity ratio

Analysis of Financial Statements (1)

strategy to financing the company

debt to equity ration

- The aim of the **Financial Leverage analysis** is to understand **how the company has exploited the leverage** (i.e. the financial resources collected from other stakeholders than the shareholders, mainly banks) to increase the profitability

- The financial analyst is interested to analyse the trend over a short period (3-4 years) and against a few competitors

$$ROE = f\left(\frac{D}{E}\right) \quad \text{where D} = \text{Total Liabilities}$$

roe as function of debt ratio =>how exploit ...

Analysis of Financial Statements (2)

- There are different approaches to the analysis of the Leverage. Even if they differ, the key takeaways that can be gathered are very similar.

- We will review three different approaches that were formalized by different stakeholders

  - **Du Pont approach** (developed by top managers)
  - **Financial analyst approach** (developed by financial auditing companies) consultancy companies
  - **Theoretical approach** (developed by scholars of accounting)

Capability to leverage (current ration between equity and liabilities in order to create ROE
means increase this ration => capital from bank is better than share holders !!!!!!!! cost of them differs

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Du Pont approach

Du Pont Approach to Leverage Analysis

$$ROE = f\left(\frac{D}{E}\right)$$

where D = Total Liabilities

corporate finance => leverage debt to equity ration => financial liabilites / ,,,

$$ROE = \left(\frac{Net\ Profit}{E}\right)$$

$$ROE = \left(\frac{Net\ Profit}{E}\right) * \left(\frac{Revenues}{Revenues}\right)$$

$$ROE = NPM * \left(\frac{Revenues}{E}\right)$$

Du Pont Approach to Leverage Analysis

cost opportunity! / competitor analysis / typical behaviour of industry

$$ROE = NPM * \left(\frac{Revenues}{E}\right) * \left(\frac{Assets}{Assets}\right)$$

$$ROE = NPM * ATR * \left(\frac{Assets}{E}\right)$$

$$ROE = NPM * ATR * \left(\frac{E + D}{E}\right)$$

total liabilities

NPM negative, ROE negative!

increasing must be in numerator, not decreasing the equity (like paying dividends, ...)

leverage to increase assets to invest

$$\boldsymbol{ROE = NPM * ATR * \left(1 + \frac{D}{E}\right)^{3}}$$

Equity Multiplier

asset must be increasing

more debt => risky and more fin. cost

EBIt decrease because of asset depriciation, salaries will increase, cost of raw increase

leveraging => D/E is increasing => NPM ATR in decreasing ===> final result is not clear!
in short term roe will be decreasing
long term will be good.

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Financial Analyst approach

it's not very common

Financial Analyst's Approach to Leverage Analysis

$$ROE = f\left(\frac{D}{E}\right)$$ where D = Total Liabilities

Assumptions: it's not realistic

- Tax rate = 0 → Taxes = 0 it's not appliable
- Financial Income = 0
- Net Profit = EBIT – I interest cost (Bank)

$$ROE = \left(\frac{EBIT - I}{E}\right)$$

Financial Analyst's Approach to Leverage Analysis

$$ROE = EBIT * \left(1 - \frac{I}{EBIT}\right) * \left(\frac{1}{E}\right)$$

$$ROE = EBIT * \left(1 - \frac{1}{ICR}\right) * \left(\frac{1}{E}\right) * \left(\frac{Assets}{Assets}\right)$$

$$ROE = ROA * \left(1 - \frac{1}{ICR}\right) * \left(\frac{E + D}{E}\right)$$

aligning prespective of shareholder and middle line manger

$$\boldsymbol{ROE = ROA * \left(1 - \frac{1}{ICR}\right) * \left(1 + \frac{D}{E}\right)}$$

direct coherence
effect of leverage on other part of function

platu increase!

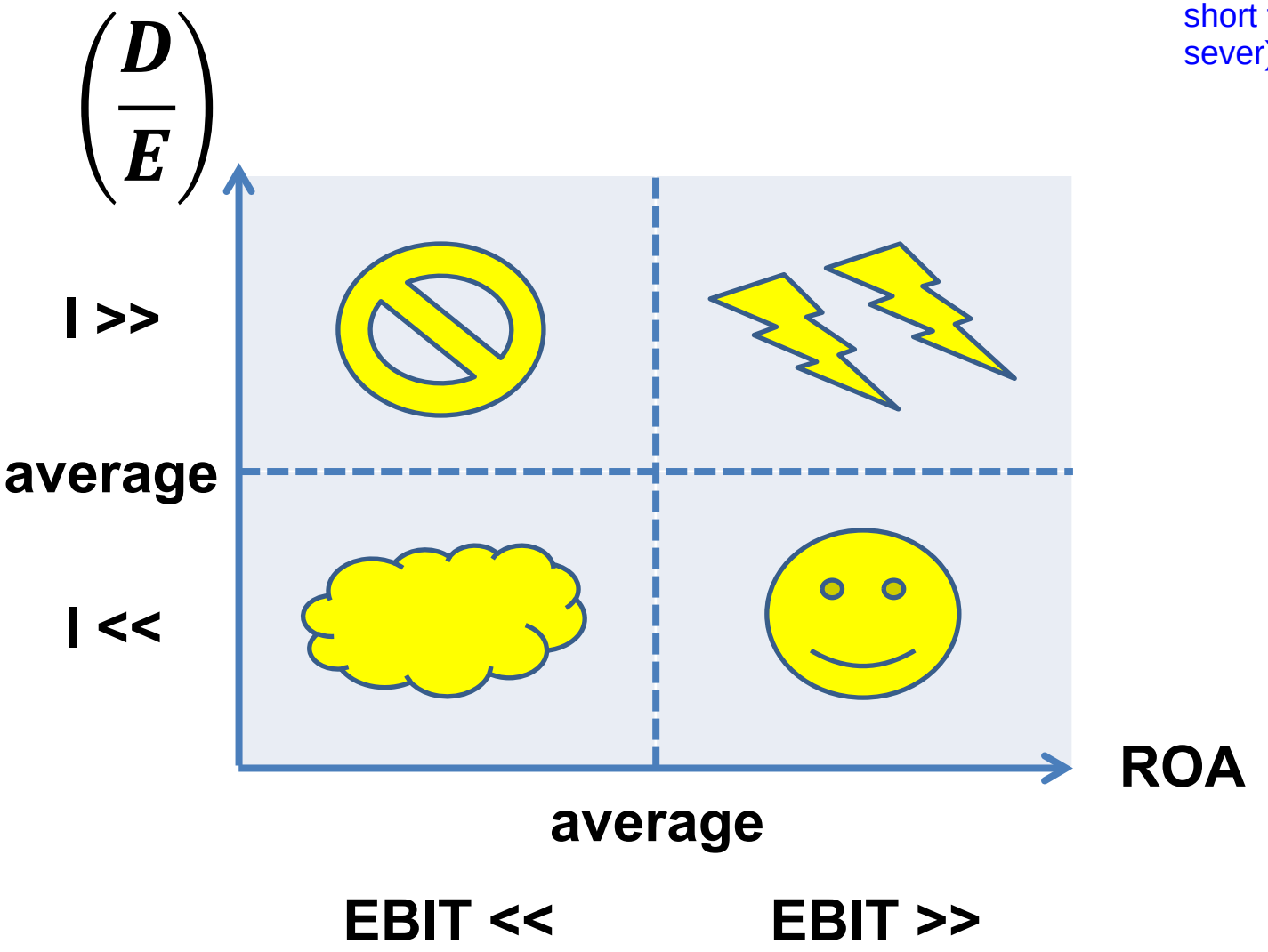
these two are dimentions of the below matrix

Asset up => ROA down!
EBIT down (short term)
Financial cost up => 1/ICR decreasing)

video 9 => from 30:00 to 45:00

Risk / Operational Efficiency Matrix

* When we leverage too much, operating profit is not covering financial cost!
short term (investing sever) like Startup



Financial Analyst's Approach in real life

Second approach | usable

$$ROE = f\left(\frac{D}{E}\right)$$ where D = Total Liabilities

Assumptions:

- Financial Interests – Financial Income = Net Financial Interests = I*
- Net Profit = EBIT – I* – Taxes

$$\text{ROE} = \left(\frac{\text{EBIT} - \text{I}^* - \text{Taxes}}{\text{E}}\right)$$

Financial Analyst's Approach in real life

$$ROE = EBIT * \left(1 - \frac{I^*}{EBIT} - \frac{Taxes}{EBIT}\right) * \left(\frac{1}{E}\right)$$

$$ROE = EBIT * \left(1 - \frac{1}{ICR^*} - \frac{Taxes}{EBIT}\right) * \left(\frac{1}{E}\right) * \left(\frac{Assets}{Assets}\right)$$

$$ROE = ROA * \left(1 - \frac{1}{ICR^*} - \frac{Taxes}{EBIT}\right) * \left(\frac{E + D}{E}\right)$$

$$ROE = ROA * \left(1 - \frac{1}{ICR^*} - \frac{Taxes}{EBIT}\right) * \left(1 + \frac{D}{E}\right)$$

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Theoretical approach

Theoretical Approach to Leverage Analysis

$$ROE = f\left(\frac{D}{E}\right)$$ where D = Total Liabilities

Assumptions:

- Financial Interests – Financial Income = Net Financial Interests = EBIT – EBT = I*

in reports

- Net Profit = EBIT – I* – Taxes

$$ROE = \left(\frac{EBIT - I^* - Taxes}{E}\right)$$

Theoretical Approach to Leverage Analysis

$$ROE = \left(\frac{EBIT - I^* - Taxes}{E}\right)$$

$$ROE = \left(\frac{EBT}{EBT}\right) * \left(\frac{EBIT - I^* - Taxes}{E}\right)$$

$$ROE = s * \frac{1}{E} * (EBIT - I^*)$$

1 - tax rate

s = impact of fiscal activities

$$ROE = s * \frac{1}{E} * \left(EBIT * \left(\frac{Assets}{Assets}\right) - I^* * \left(\frac{D}{D}\right)\right)$$

Theoretical Approach to Leverage Analysis

for analyzing this formula, report ROI and WACC (Not r and ROA) this is how managers decide

$$ROE = s * \frac{1}{E} * \left(EBIT * \left(\frac{Assets}{Assets} \right) - I^* * \left(\frac{D}{D} \right) \right)$$

$$ROE = s * \frac{1}{E} * (ROA * (E + D) - r * D)$$

numerator! real nist misleading!! don't use for analysis

r = average cost of capital

$$ROE = s * \frac{1}{E} * \left(ROA * E + D * (ROA - r) \right)$$

why important to academia => three different activities in a company:
ROA => Operating activity
R => Financial
S => Fiscal

$$\boldsymbol{ROE = s * \left(ROA + \left(\frac{D}{E} \right) * (ROA - r) \right)}$$

s is not commented=>
is given!!!! beyond the company control

ROE is up ==>ROA >> r
ebit higher than financial cost

income statment in this formula

when d/e is higher than 3 bank see us risky

Leverage Analysis: 3 coherent Perspectives

$$\boldsymbol{ROE = f\left(\frac{D}{E}\right)}$$ where D = Total Liabilities

$$ROE = NPM * ATR * \left(1 + \frac{D}{E}\right)$$

$$ROE = ROA * (1 - ICR) * \left(1 + \frac{D}{E}\right)$$ *Under a few assumptions*

$$ROE = s * \left(ROA + \left(\frac{D}{E}\right) * (ROA - r)\right)$$