



**University  
of Ferrara**



# **Financial Management**

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**Master's Degree Programmes:**

**Small and Medium Enterprises (SMEs) in international markets**

**Professioni e amministrazione d'impresa**

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# Net Capital Employed (NCE)

## Meaning

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The amount of financial resources invested by the enterprise, which has been financed by debt and/or equity capital. In other words is the amount of financial needs for the entity to be able to operate in its businesses. Its is used as the denominator of some important financial ratios (e.g. ROI). It is also important for assessing the amount of resources to be financed by capital (shareholders) and financial markets (e.g. banks).

## Calculation

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It is the algebraic sum of assets and liabilities originated by the business operations of the firm.

## Analysis

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1. It can be compared to:
  - a) NCE of other firms
  - b) NCE of the same entity in past years
2. It can be analysed by dividing it into the Net Working Capital and in the Net Fixed Capital Employed

## Other

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# Net Working Capital (NWC)

## Meaning

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The amount of financial resources invested by the entity in the cycle starting with the purchasing of current resources (e-g- raw materials), the manufacturing of goods and their sales.

It is a part of the Net Capital Employed.

It is important for assessing the amount of resources that an entity must acquire for financing its current activities related to business.

## Calculation

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It is the algebraic sum of Trade receivable, Inventory and Trade payables, and other similar assets and liabilities.

## Analysis

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1. It can be compared to:
  - a) NWC of other firms
  - b) NWC of the same entity in past years
2. Analysis of duration ratios (Days Sales Outstanding, Days Payables Outstanding, Days In Inventories) refer to the components of NWC.

## Other

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# Net Financial Position (NFP)

## Meaning

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The amount of financial resources the entity has obtained by debt holders (such as banks).  
It is also called Net Financial Debt.  
Its is used as the numerator of Leverage and the denominator of ROD.

## Calculation

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It is the algebraic sum of financial liabilities and cash and cash equivalents.

## Analysis

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1. It can be compared to:
  - a) NFP of other firms
  - b) NFP of the same entity in past years
  - c) Shareholders' Equity (see Leverage ratio)
2. It can be analysed by dividing it into the short-term and the long-term NFP

## Other

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1. It can be divided into the short-term and the long-term NFP

# Net Shareholders Equity (E)

## Meaning

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The amount of resources the entity has obtained by its shareholders.

It is also simply called Equity.

Its is used as the numerator of Leverage and the denominator of ROE.

## Analysis

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1. It can be compared to:
  - a) E of other firms
  - b) E of the same entity in past years
  - c) PFN of the same entity (see Leverage ratio)
2. The analysis of changes in equity (and pay-out policies) is really important.

## Calculation

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It is the amount of the funds contributed by the stockholders plus the retained earnings (or losses).

The main component of Equity are: Share capital (net of claims on stockholders), Preferred stock, Capital surplus, Retained earnings, Reserves.

## Other

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# Operating Income (OI)

## Meaning

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It is the profit that an entity realizes through the (current) activities relating to its business.

It is also known as Operating margin, Operating Profit and, with some differences (e.g. the inclusions of non-recurrent items), as Earnings Before Interests and Taxes (EBIT).

It is used as the numerator of some financial ratios, such as ROI and ROS.

## Calculation

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It is the difference between operating revenues and operating expenses.

It includes all expenses except interest and income tax expenses.

## Analysis

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1. It can be compared to:
  - a) EBIT of other firms
  - b) EBIT of the same entity in past years
  - c) NCE of the same entity (see ROI)
  - d) Sales of the same entity (see ROS)
2. Du Pont analysis
3. Analysis of operating cost and revenues

## Other

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# Cash Flow Form Operations (CFO)

## Meaning

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It is the amount of cash a company generates from the revenues it brings in, net of cash paid to suppliers.

It is also known as Operating cash flow, Cash flow provided by operations, Cash flow from operating activities, Free cash flow from operations.

Its is used as the numerator of some financial ratios, such as CFOS.

## Calculation

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It is the difference between the cash generated from customers and cash paid to suppliers.

It excludes costs associated with investment decisions, financing decisions and taxation.

## Analysis

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1. It can be compared to:
  - a) CFO of other firms
  - b) CFO of the same entity in past years
  - c) NFP of the same entity (see CFOD)
  - d) NCE of the same entity (see CFOI)
  - e) Sales of the same entity (see ROS)
2. Analysis of sources and uses
3. Analysis of duration ratios (Days Sales Outstanding, Days Payables Outstanding, Days In Inventories)

## Other

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# Return on Equity (ROE)

$$\text{ROE} = \frac{\text{Net Earnings}}{\text{Average Equity}} = \frac{\text{NE}}{\text{E}}$$

## Meaning

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It is the amount of net income returned as a percentage of shareholders equity.  
Different formulas of ROE exist.  
It is important for stockholders (actual and potential).

## Analysis

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1. It can be compared to:
  - a) ROE of other firms
  - b) ROE of the same entity in past years
  - c) The minimum return required by stockholders (see CAPM)
2. Analysis of the ROE Tree

## Other

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1. The denominator is calculated as the average of the Shareholders' Equity of two consecutive periods (usually years)

# Return on Investments (ROI)

$$\text{ROI} = \frac{\text{Operating Income}}{\text{Average Net Capital Employed}} = \frac{\text{OI}}{\text{NCE}}$$

## Meaning

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Also known as Return on Average Capital Employed (ROACE) It is the amount of income the entity has generated operating in its business, regardless to the financing decisions.

It is the return on the Net Capital Employed by the entity in its businesses, and can be thought of as being the results of the capital invested in the businesses.

Different formulas of ROI exist, where for example the Operating Income is net of taxes or the denominator is differently calculated.

It is important for comparing a entity to its competitors, since it represents the ability of the entity to operate in its businesses.

## Analysis

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1. It can be compared to:
  - a) ROI of other entities, especially competitors
  - b) ROI of the same entity in past years
  - c) The Weighted Average Cost of Capital (WACC)
2. Du Pont Analysis ( $\text{ROI} = \text{ROS} \times \text{NCE Turnover}$ )

## Other

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1. The denominator Is calculated as the average of the NCE of two consecutive periods (usually years)

# Return on Sales (ROS)

<b>ROS</b>	$\frac{\text{Operating Income}}{\text{Revenues from Sales}}$	$\frac{\text{OI}}{\text{S}}$
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## Meaning

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Also known as Operating Margin in Percentage on Revenues, it is the amount of Operating Income gained through the sales in the businesses of the firm.

It is important for the analysis of strategies based on differentiation and premium price.

## Analysis

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1. It can be compared to:
  - a) ROS of other entities, especially competitors
  - b) ROS of the same entity in past years
2. Analysis of the structure of costs (especially variable versus fixed costs)
3. Analysis of costs on percentage of Sales revenues.

## Other

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# NCE Turnover

$$\text{NCE Turnover} = \frac{\text{Revenues form Sales}}{\text{Average Net Capital Employed}} = \frac{S}{\text{NCE}}$$

## Meaning

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It is the capacity of NCE to generate sales.  
From another perspectives is the times sales recover the capital invested in the business.  
It is important for the analysis of strategies based on volume (and cost leadership).

## Analysis

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1. It can be compared to:
  - a) NCE Turnover of other entities, especially competitors
  - b) NCE Turnover of the same entity in past years
2. Analysis of the turnover of he single components of NCE, together with duration ratios

## Other

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1. The denominator Is calculated as the average of the NCE of two consecutive periods (usually years)

# Degree of Operating Leverage (DOL)

$$\text{DOL} = \frac{\text{Contribution Margin}}{\text{Operating Income}} = \frac{\text{CM}}{\text{NCE}}$$

## Meaning

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It is a measure of how changes in revenues from sales translate into changes in operating income. For example, if an entity has a DOL = 2, a 10% increase in sales will determine a 20% increase in operating income.

DOL depends on the cost structure of an entity: the higher the percentage of fixed costs, the higher the DOL.

Also known as Operating Leverage, it is also calculated dividing the percent change in EBIT by the percent change in sales.

It is important for the analysis of the risk of an entity, in particular the analysis of the variability of operating income depending on the variability of demand (e.g. sales) and cost structure.

## Analysis

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1. It can be compared to:
  - a) DOL of other entities, especially competitors
  - b) DOL of the same entity in past years
2. Analysis of DOL compared to an entity's Break Even Point and expected or actual sales.
3. Analysis of DOL together with DFL..

## Other

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1. Analysis of DOL compared to an entity's Break Even Point and expected or actual sales.
2. Analysis of DOL together with DFL..

# Leverage

$$\text{Leverage} = \frac{\text{Net Financial Position}}{\text{Net Capital Employed}} = \frac{\text{NFP}}{\text{NCE}}$$

## Meaning

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It summarizes the financing policies of an entity.  
It shows the amount of (net) financial debts with respect to shareholders equity.  
It is important for the analysis of the solvency of an entity.  
Banks and financial institutions look at it as one of the most important measures of the risk of an entity.

## Analysis

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1. It can be compared to:
  1. Leverage of other entities, especially competitors
  2. Leverage of the same entity in past years
2. This ratio is often analysed in the contest of Financial Leverage (See DFL), and compared to the Return On Debt (ROD)
3. Analysis of short-term versus long-term NFP is also important.

## Other

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1. NCE and NFP are calculated as the average of the values of two consecutive periods (usually years).
2. See also Degree of Financial Leverage

# Degree of Financial Leverage (DOL)

<b>DFL</b>	$\frac{\text{Operating Income}}{\text{Operating Income} - \text{Net Financial Costs}}$	$\frac{\text{OI}}{\text{OI} - \text{NFC}}$
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## Meaning

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It is a measure of how changes in the Operating Income translate into changes in Net Income. For example, if an entity has a DFL = 3, a 10% increase in Operating Income will determine a 30% increase in Net income.

DFL depends on the financing policies of the entity and from their cost.

It is important for the analysis of the financial risk of an entity, in particular the analysis of the variability of Net Income depending on the variability of Operating Income. This latter can be further analysed through the DOL.

## Analysis

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1. It can be compared to:
  - a) DFL of other entities, especially competitors
  - b) DFL of the same entity in past years
2. Analysis of DFL together with DOL.

## Other

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# Interest Coverage

$$\text{Interest Coverage} = \frac{\text{Operating Income}}{\text{Net Financial Costs}} = \frac{\text{OI}}{\text{NFC}}$$

## Meaning

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It shows how easily a company can pay interest on outstanding debt: The higher the ratio, the higher the ability to pay financial interests.

It is often used as an indicator of the financial risk of the firm.

## Analysis

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1. It can be compared to:
  - a) Interest Coverage of other entities, especially competitors
  - b) Interest Coverage of the same entity in past years
2. Often used in the solvency analysis of the firm.

## Other

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# Return On Debt (ROD)

$$\text{ROD} = \frac{\text{Net Financial Costs}}{\text{Net Financial Position}} = \frac{\text{NFC}}{\text{NFP}}$$

## Meaning

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It is the average cost of (net) financial debts.  
It is useful for the analysis of the cost of the financing policies of the entity.

## Analysis

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1. It can be compared to:
  - a) ROD of other entities, especially competitors
  - b) ROD of the same entity in past years
  - c) ROI of the same entity (in the analysis of financial leverage)

## Other

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1. The denominator is calculated as the average of the NFP of two consecutive periods (usually years)

# Days Sales Outstanding (DSO)

$$\text{DSO} = \frac{\text{Trade receivables (Net of VAT)}}{\text{Revenues from sale}/365}$$

## Meaning

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It is a measure of the average number of days that a company takes to collect revenue after a sale has been made.  
It is useful for the analysis of the investment an entity makes in Net Working Capital.

## Analysis

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1. It can be compared to:
  - a) DSO of other entities, especially competitors
  - b) DSO of the same entity in past years
  - c) DPO and DII of the same entity

## Other

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# Days Payables Outstanding (DPO)

$$\text{DPO} = \frac{\text{Trade payables (Net of VAT)}}{\text{Purchasing Costs}/365}$$

## Meaning

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It is a company's average payable period. Days payable outstanding tells how long it takes a company to pay its invoices from trade creditors, such as suppliers. It is useful for the analysis of the investment an entity makes in Net Working Capital.

## Analysis

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1. It can be compared to:
  - a) DPO of other entities, especially competitors
  - b) DPO of the same entity in past years
  - c) DSO and DII of the same entity

## Other

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# Days In Inventory (DII)

$$\text{DII} = \frac{\text{Inventory}}{\text{Revenues from sale}/365}$$

## Meaning

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It measures the average number of days the company holds its inventory before selling it.  
It is useful for the analysis of the investment an entity makes in Net Working Capital.

## Analysis

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1. It can be compared to:
  - a) DII of other entities, especially competitors
  - b) DII of the same entity in past years
  - c) DSO and DPO of the same entity

## Other

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# Cash Flow From Operations on Investments (CFOI)

$$\text{CFOI} = \frac{\text{Cash Flow From Operations}}{\text{Average Net Capital Employed}} = \frac{\text{CFO}}{\text{NCE}}$$

## Meaning

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It is the amount of cash flow the entity has generated operating in its business, regardless to the financing decisions.

From a different perspective it measures the ability of the firm to recover investment, therefore it is similar to a pay-back period index.

Its use is similar to ROI's.

## Analysis

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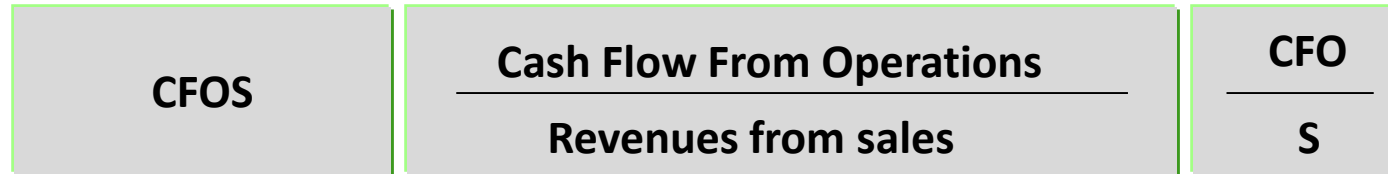
1. It can be compared to:
  - a) CFOI of other entities, especially competitors
  - b) CFOI of the same entity in past years

## Other

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1. The denominator is calculated as the average of the NCE of two consecutive periods (usually years)

# Cash Flow From Operations on Sales (CFOS)



## Meaning

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It is the amount of cash flow the entity gets from its sales.  
It shows the ability of the entity to produce cash flow through the sales process.

## Analysis

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1. It can be compared to:
  - a) CFOS of other entities, especially competitors
  - b) CFOS of the same entity in past years

## Other

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# Cash Flow From Operations on Debt (CFOD)

$$\text{CFOD} = \frac{\text{Cash Flow From Operations}}{\text{Average Net Financial Position}} = \frac{\text{CFO}}{\text{NFP}}$$

## Meaning

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It measures the ability of the entity to reimburse its (ne) financial debts: the higher the CFOD, the higher the ability of the entity to reimburse.  
It is used in the analysis of financial risk of the firm.

## Analysis

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1. It can be compared to:
  - a) CFOD of other entities, especially competitors
  - b) CFOD of the same entity in past years

## Other

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1. The denominator Is calculated as the average of the NFP of two consecutive periods (usually years)

# Weighted Average Cost of Capital (WACC)

**WACC**

$$r_e \times \frac{E}{E + D} + r_d \times (1 - \tau) \times \frac{D}{E + D}$$

## Meaning

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It is the average cost of capital in which each category of capital is proportionately weighted.

All sources of capital, including common stock, preferred stock, bonds and any other long-term debt, are included in a WACC calculation. A firm's WACC increases as the beta and rate of return on equity increase, as an increase in WACC denotes a decrease in valuation and an increase in risk.

It is used in the valuation of investment projects (NPV, IRR) and in the EVA system.

## Analysis

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1. It can be compared to:
  - a) WACC of other entities, especially competitors
  - b) WACC of the same entity in past years
  - c) ROI of the same entity

## Other

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1.  $r_e$  is the expected return on equity, usually calculated according to CAPM or to a similar model;
2.  $r_d$  is the expected return on financial debts;
3.  $t$  is the tax rate on income;
4.  $E$  is the market value of equity;
5.  $D$  is the market value of financial debts