Erasmus Mundus Joint Master in Economics and Management of Network Industries (2015-2016)

FINANCIAL ANALYSIS OF THE ELECTRIC POWER INDUSTRY
COST AND RETURN ANALYSIS

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FINANCIAL ANALYSIS OF THE ELECTRICITY INDUSTRY. Contents

I. Cost structure of the Electricity Business.
II. Capital Cost Analysis.
III. Economic and Financial Analysis. Ratios.
  - Economic and Financial Return. Value Creation.
  - Rating ratios.
  - Stock market ratios.
V. Case studies.
VI. Generation cost of power plants.
VII. Distribution costs.

III. ECONOMIC & FINANCIAL ANALYSIS. RATIOS

III. Economic & Financial Analysis.

Financial situation

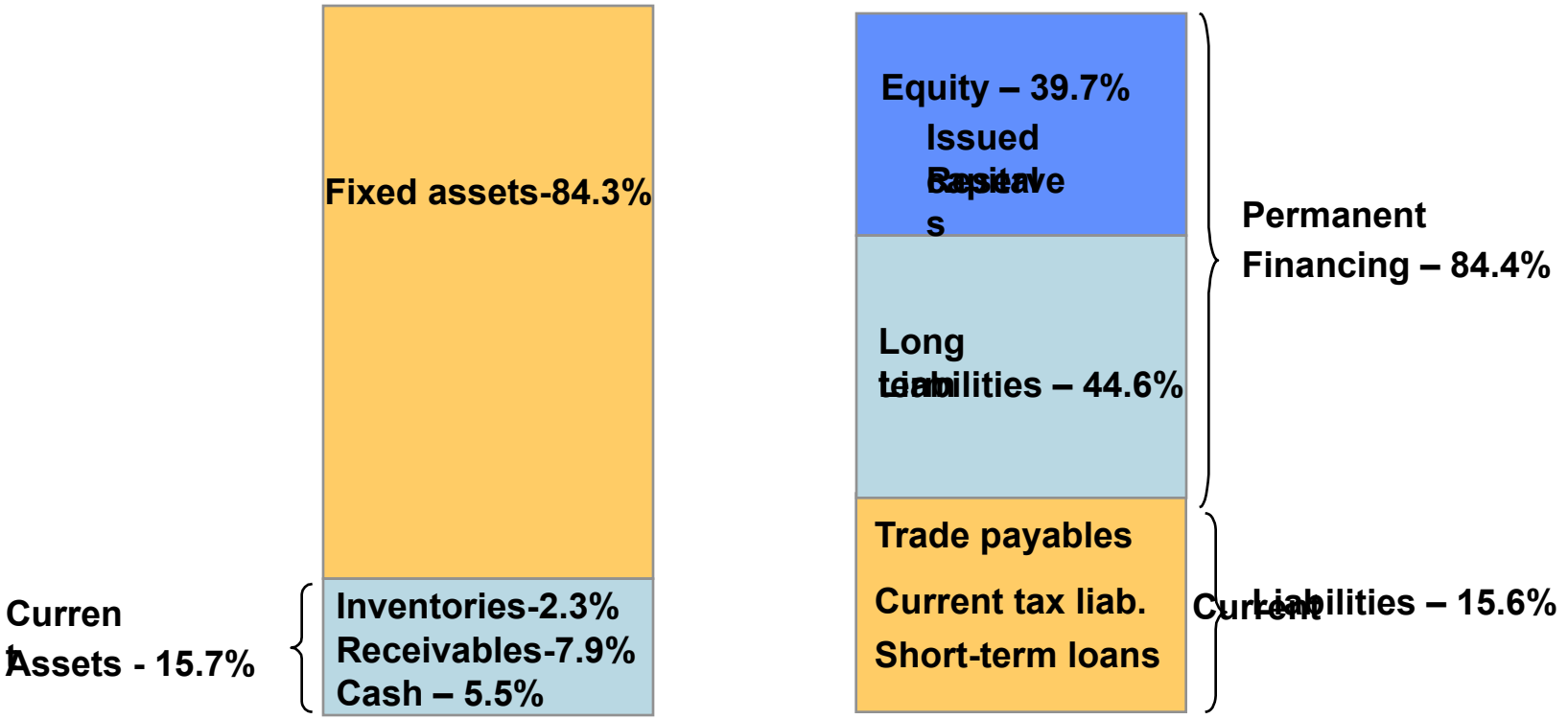
UNESA BALANCE SHEET (Millions of euros)						
ITEMS	GENERATION+SUPPLY.		DISTRIBUTION		TOTAL UNESA	
	2.014	%	2.014	%	2.014	%
ASSETS						
Fixed assets	**41.584**	**56,4**	**32.124**	**43,6**	**73.708**	**100,0**
Intangible assets	4.678	67,8	2.226	32,2	6.904	100,0
Tangible assets	31.692	53,4	27.606	46,6	59.297	100,0
Financial assets	5.214	69,5	2.292	30,5	7.506	100,0
Current assets	**11.017**	**80,1**	**2.741**	**19,9**	**13.758**	**100,0**
Inventories	1.958	97,1	58	2,9	2.016	100,0
Receivables	5.711	82,7	1.193	17,3	6.905	100,0
Other current assets	3.340	69,2	1.490	30,8	4.830	100,0
Assets held for sale	8	100,0	0	0,0	8	100,0
TOTAL ASSETS	**52.601**	**60,1**	**34.865**	**39,9**	**87.466**	**100,0**

LIABILITIES	GENERATION+SUPPLY.		DISTRIBUTION		TOTAL UNESA	
	2.014	%	2.014	%	2.014	%
Equity	**19.283**	**74,7**	**6.514**	**25,3**	**25.797**	**100,0**
Deferred income	**126**	**1,4**	**8.816**	**98,6**	**8.942**	**100,0**
Provisions for risks and liabilities	**3.792**	**63,1**	**2.220**	**36,9**	**6.012**	**100,0**
Long term creditors	**20.822**	**63,1**	**12.193**	**36,9**	**33.014**	**100,0**
Short term creditors	**8.580**	**62,6**	**5.122**	**37,4**	**13.702**	**100,0**
TOTAL LIABILITIES	**52.602**	**60,1**	**34.864**	**39,9**	**87.466**	**100,0**

III. Economic & Financial Analysis.

Financial situation

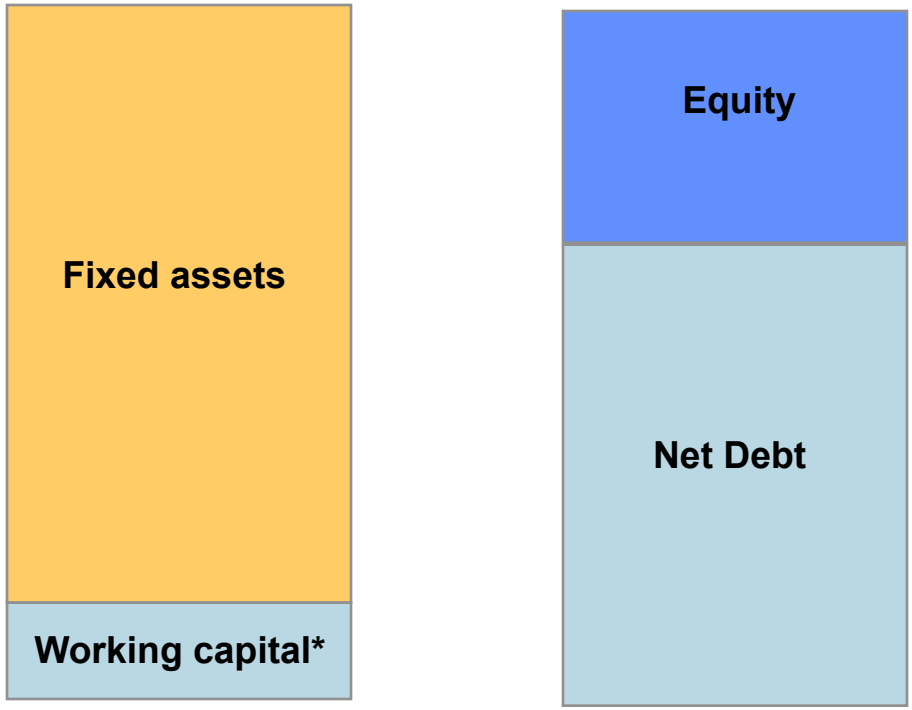
ELECTRICITY BUSINESS



III. Economic & Financial Analysis.

Financial situation

ELECTRICITY BUSINESS

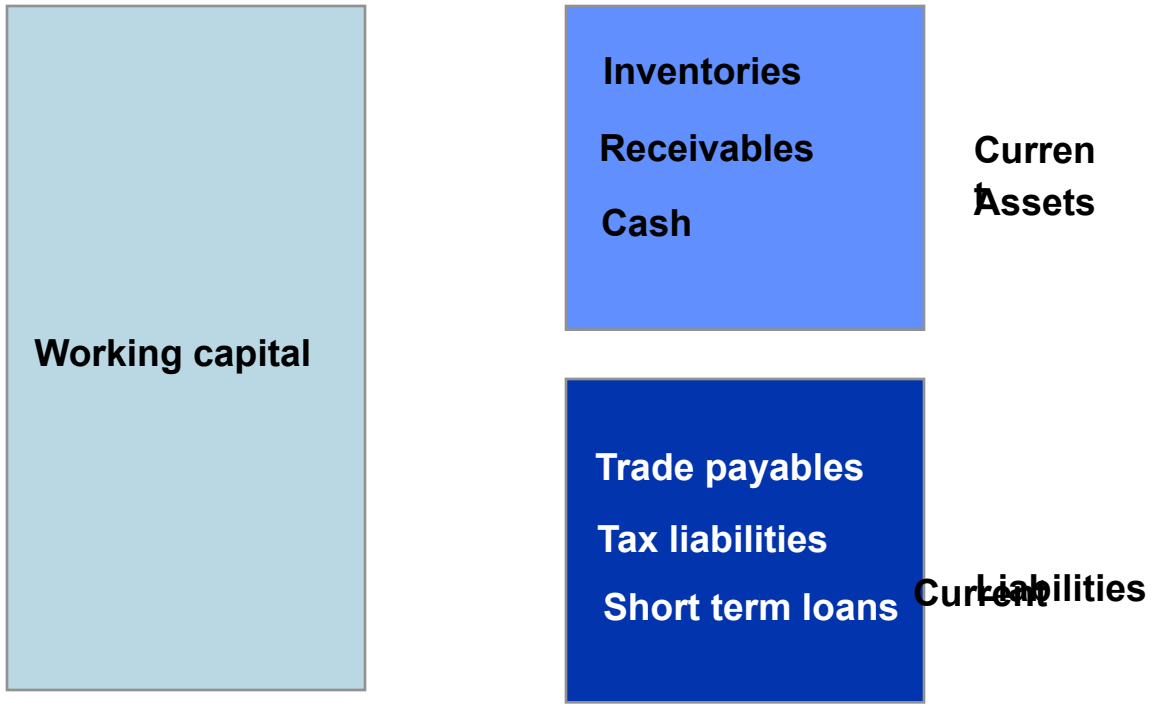


(*) Working capital: Current assets – current liabilities

III. Economic & Financial Analysis.

Working capital

ELECTRICITY BUSINESS



III. Economic & Financial Analysis.

Liquidity

LIQUIDITY RATIOS

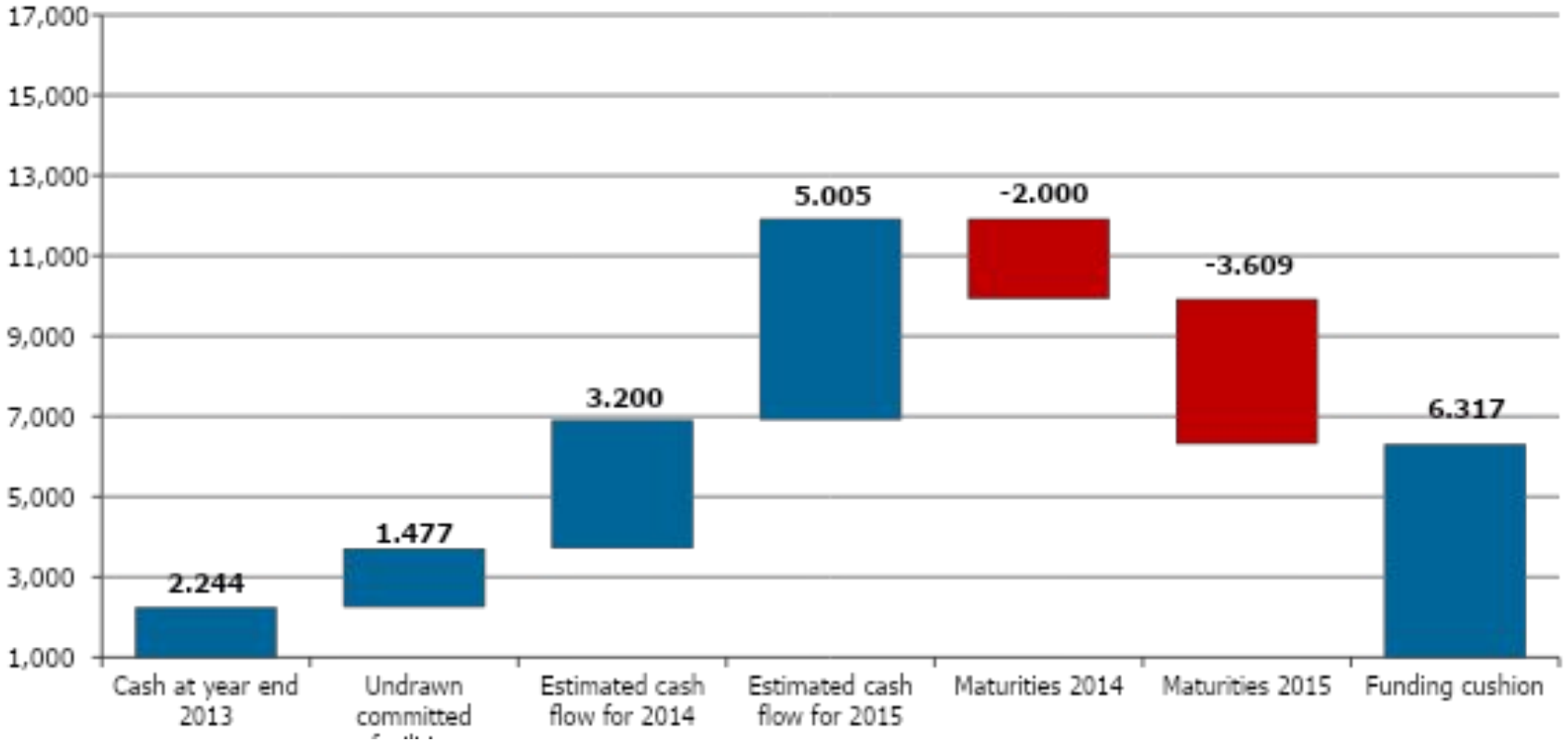
Current ratio = Current assets / Current liabilities

Quick ratio = (Current assets – inventories) / Current liabilities

III. Economic & Financial Analysis.

Liquidity

LIQUIDITY CHART AT YEAR END 2013



III. Economic & Financial Analysis.

Return

The business return is the main performance indicator and the most frequently used by stake holders. Two ratios can be used to measure this business return concept:

- ✔ **Economic return: It indicates the performance of the assets employed in the production process**
- ✔ **Financial return: It indicates the performance of the capital invested by the business owners**

III. Economic & Financial Analysis.

Return

FINANCIAL RETURN

- Relationship between earnings after taxes (net income) and equity.

- Return indicator to be used by investors - company owners -

R.O.E. = Net income / Equity

III. Economic & Financial Analysis.

Return

ECONOMIC RETURN

R.O.A = EBIT / Total net assets

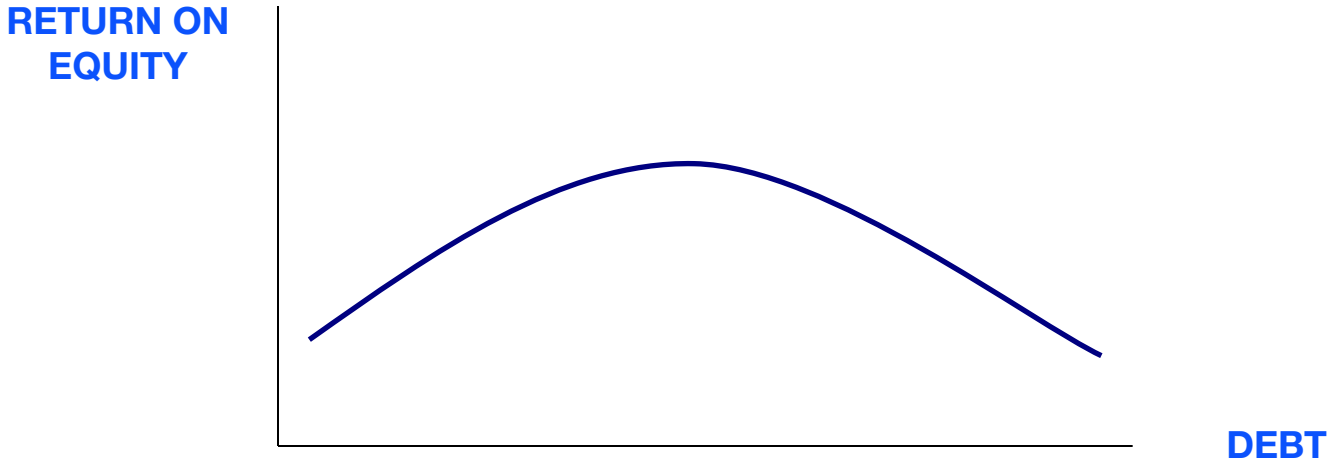
R.O.A = EBIT (1-t) / Total net assets

EBIT : Earnings before interest and Corporate Tax.

EBIT (1-t) EBIT after Corporate Tax

III. Economic & Financial Analysis.

Financial leverage



	No debt		D/E = 100%		D/E=200%	
Investment	1,000		1,000		1,000	
Value incr. (ROA)	20 %	5%	20%	5%	20%	5%
Debt	-	-	1,000		2,000	
Debt cost	-	-	10%		10%	
Profit	200	50	400-100	100-100	600-200	150-200
R.O.E.	20 %	5%	30%	0%	40%	-5%

V. Economic & Financial Analysis.

Return

ECONOMIC RETURN

$$\text{R.O.A.} = \frac{\text{EBIT}}{\text{Net assets}} = \frac{\text{EBIT}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Net assets}}$$

EBIT / Sales = Sale margin

Sales / Net assets = Asset rotation

V. Economic & Financial Analysis.

Return

FINANCIAL RETURN AND FINANCIAL LEVERAGE (1)

$$\text{R.O.E.} = \frac{\text{Net income}}{\text{Equity}}$$

$$\text{R.O.E.} = \frac{\text{Net income}}{\text{Equity}} \times \frac{\text{Sales}}{\text{Sales}} \times \frac{\text{Net assets}}{\text{Net assets}} \times \frac{\text{EBIT}}{\text{EBIT}} \times \frac{\text{EBT}}{\text{EBT}}$$

$$\text{R.O.E.} = \frac{\text{Sales}}{\text{Net assets}} \times \frac{\text{EBIT}}{\text{Sales}} \times \frac{\text{Net assets}}{\text{Equity}} \times \frac{\text{EBT}}{\text{EBIT}} \times \frac{\text{Net income}}{\text{EBT}}$$

III. Economic & Financial Analysis.

Financial leverage

FINANCIAL RETURN AND FINANCIAL LEVERAGE (2)

$$\frac{\text{Sales}}{\text{Net assets}} = \text{Asset Rotation}$$

$$\frac{\text{EBIT}}{\text{Sales}} = \text{Sales margin}$$

$$\frac{\text{Net assets}}{\text{Equity}} \times \frac{\text{EBT}}{\text{EBIT}} = \text{Financial Leverage}$$

$$\frac{\text{Net income}}{\text{EBT}} = \text{Tax effect}$$

V. Economic & Financial Analysis.

Financial leverage

FINANCIAL RETURN AND FINANCIAL LEVERAGE (3)

- Financial Return (i.e. Equity Return) can be also analysed as a variable depending on Financial Leverage:

$$\frac{\text{Net assets}}{\text{Equity}} \times \frac{\text{EBT}}{\text{EBIT}} = \text{Financial Leverage}$$

$$\text{ROE} = \text{ROA} \times \text{Financial Leverage} \times \text{Tax Effect}$$

- When is there a positive financial leverage?
- What are the consequences of a positive financial leverage on investment decision making?

V. Economic & Financial Analysis.

Return

FINANCIAL RETURN AND FINANCIAL LEVERAGE (4)

$$\text{R.O.E.} = \frac{\text{Net income}}{\text{Equity}} = \frac{\text{EBT}(1-\text{t})}{\text{Equity}}$$

$$\frac{\text{EBT}}{\text{Equity}} = \frac{\text{EBIT - FE}}{\text{Equity}} = \frac{\text{R.O.A. (Net assets)}}{\text{Equity}} - \frac{\text{FE}}{\text{Equity}} =$$

$$= \frac{\text{R.O.A.}(\text{E}+\text{D})}{\text{E}} - \frac{\text{i D}}{\text{E}} = R.O.A. \times \left(1+\frac{\text{D}}{\text{E}}\right) - \frac{\text{i D}}{\text{E}}$$

$$= R.O.A. + \left(R.O.A. - i\right)\frac{\text{D}}{\text{E}}$$

$$\text{R.O.E.} = \left[R.O.A. + \left(R.O.A. - i\right)\frac{D}{E}\right]\left(1-t\right)$$

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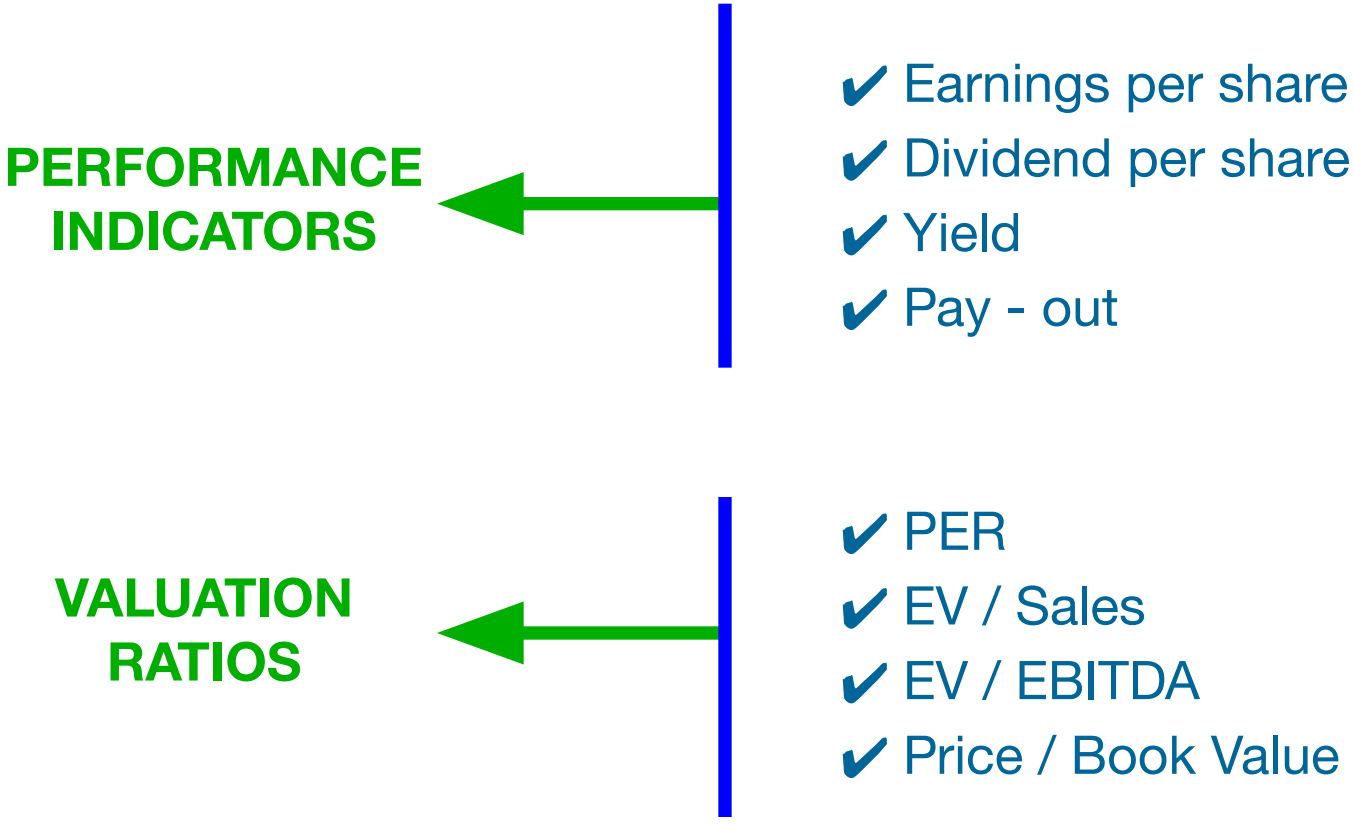
III. Economic & Financial Analysis.

Stock Market Ratios

STOCK MARKET RATIOS



V. Economic & Financial Analysis.

Operating Ratios

STOCK MARKET RATIOS: Earnings per share

Earnings = Net income

Net income ENEL[(1)]	=	3,032 €m.
Nº shares ENEL	=	9,403.4 millions

EPS = 0.32 €

(1) Analyst's adjusted net income

V. Economic & Financial Analysis.

Operating Ratios

STOCK EXCHANGE RATIOS : Dividend per share

Dividend = Distributed income

Dividends ENEL = 1,506 €m

Nº of shares ENEL = 9,403.4 millions

Dividend per share (DPS) = 0.16 €

V. Economic & Financial Analysis.

Operating Ratios

STOCK EXCHANGE RATIOS: Pay - out

Pay - out = Distributed income / Net income

Net income = Profit attributed to owners of the parent company

Distributed income = 1,506 €m

Net income ENEL = 3,032 €m

Pay - out = 49.7%

V. Economic & Financial Analysis

Valuation ratios

STOCK EXCHANGE RATIOS: Price Earning Ratio (PER)

Price = Market Capitalisation

Earnings = Net income

Market Capitalisation ENEL = 39,739 €m

Net income ENEL = 3,032 €m

PER ENEL = 13.1 x

Average PER Energy Utilities = 13.9 x (Analyst)

Price ENEL = Average PER X Net income

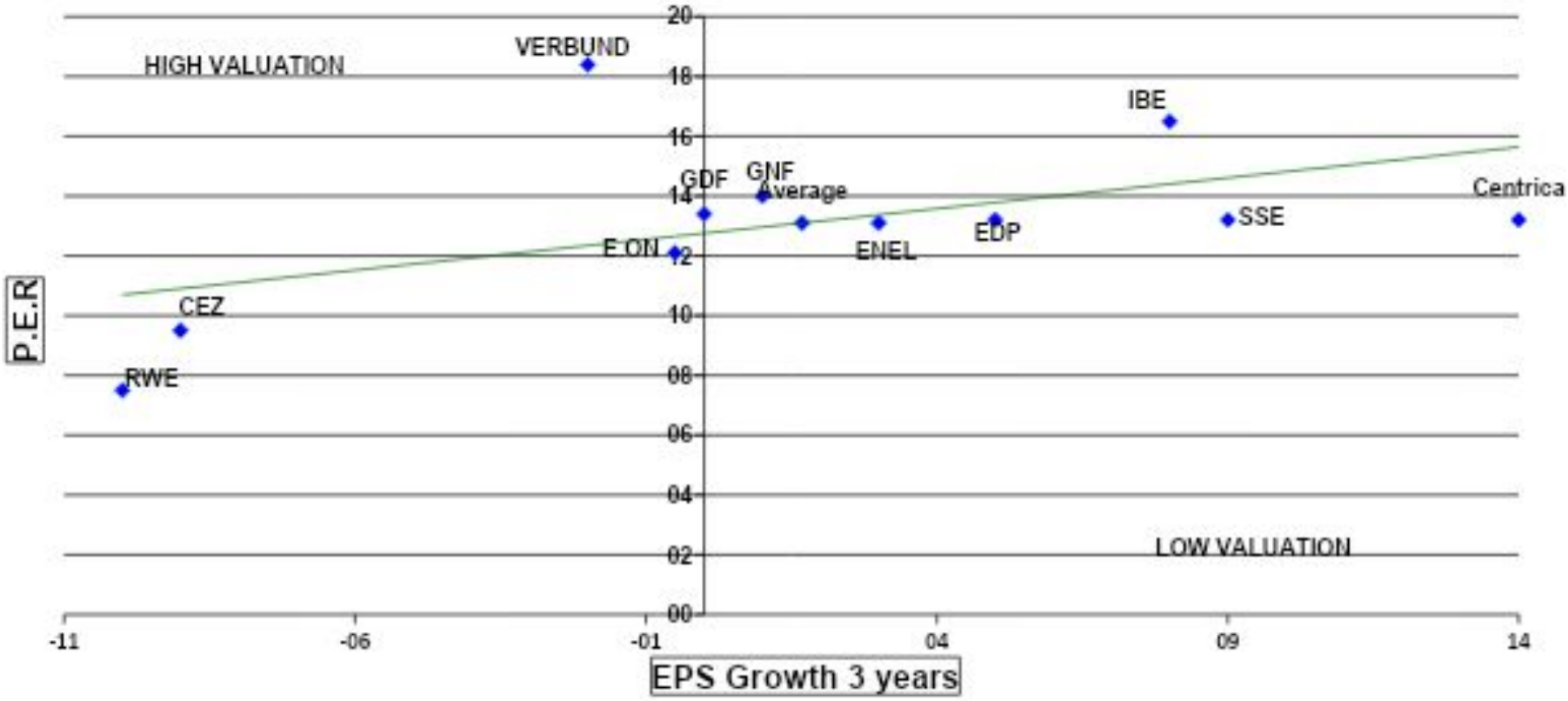
Estimated Equity Value = 42,145 €m

Estimated Price = 4.5 € (Actual Price 4.23)

V. Economic & Financial Analysis

Valuation ratios

P.E.R. and E.P.S. Growth expectations



V. Economic & Financial Analysis

Valuation ratios

STOCK EXCHANGE RATIOS: EV / EBITDA

Enterprise Value = Market Cap. + Net Debt + Provisions + Other liabilities

EBITDA = Earnings before interests taxes depreciation & amortization

Enterprise Value = Average Ratio x EBITDA IBE

EV / EBITDA ENEL = 6.4 x

EBITDA ENEL = 15,018 €m.

Average EV / EBITDA = 8.0 x

Estimated Enterprise Value = 120,144 €m.

(-) Net Debt ENEL = 38,983 €m.

(-) Provisions & other liab. = 25,000 €m

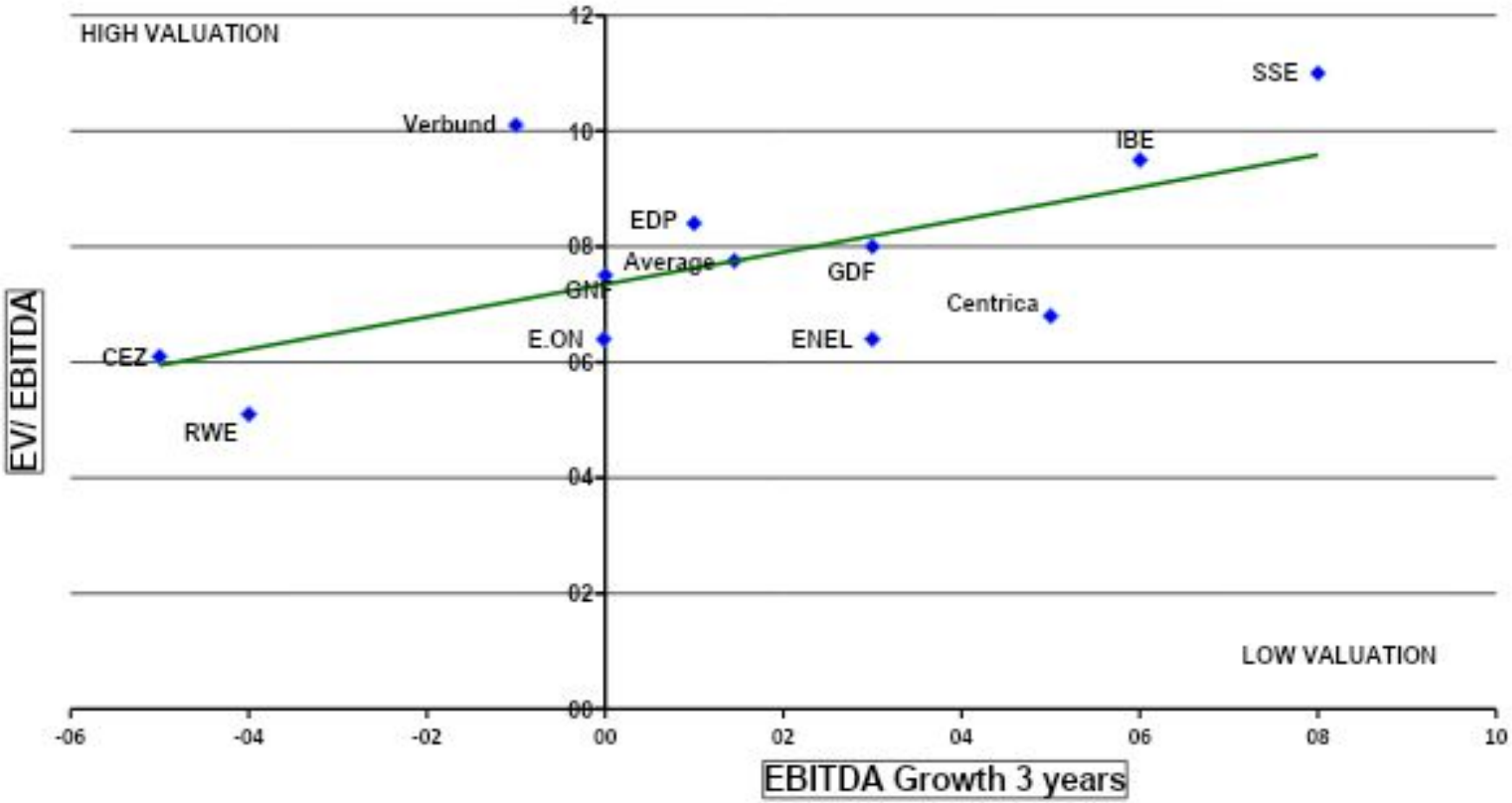
= Estimated Equity Value = 56,161 €m.

= Estimated Price = 6,0 € (Actual Price 4.23)

V. Economic & Financial Analysis

Valuation ratios

EV / Ebitda and Ebitda Growth expectations



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V. Economic & Financial Analysis.

Rating ratios

RATING CRITERIA

Sector risk profile		Financial profile			
	Sub-sectors	FFO adjusted leverage (x)	FFO interest cover (x)	Capex / CFO (%)	Debt/EBITDA (x)
AAA					
AA	Highly vertically integrated	< 2	> 7.5	70	< 1.5
A	Vertically integrated	3.0	6.0	70	3.0
BBB	Partially integrated	4.5	4.0	90	4.5
BB	Minimal integration, Emerging market risk.	6.0	< 3.5	100	6.0
B	Regulatory risk, Volatile cash flows, Concentrated assets	> 6.5	< 3.0	100	> 6.0

Source: www.Fitchratings.com

V. Economic & Financial Analysis.

Rating ratios

FINANCIAL PROFILE

- ✔ FFO adjusted leverage (x)
- ✔ FFO interest cover (x)
- ✔ Capex / FFO (%)
- ✔ Debt / Ebitda (x)

$$\text{FFO adjusted leverage} = \frac{\text{Adjusted debt}}{\text{Funds flow from operations}}$$

$$\text{FFO interest cover} = \frac{\text{Funds flow from operations}}{\text{Interest paid - Interest received}}$$

$$\text{Capex / FFO} = \frac{\text{Capital expenditure}}{\text{Funds flow from operations}}$$

$$\text{Debt / Ebitda} = \frac{\text{Adjusted debt}}{\text{Ebitda}}$$

V. Capital cost analysis.

Financial needs estimation

CASH FLOW SUMMARY
Operating EBITDA
-Cash interest paid, net of interes received
-Cash tax paid
+Associate Dividends
+/- Other changes before FFO
Funds Flow from Operations (FFO)
+/-Working capital
Cash Flow from Operations
+/- Non operational cash flow
Capital expenditure
Dividends paid
Free Cash Flow

V. Economic & Financial Analysis.

Rating ratios

$$\text{FFO adjusted leverage} = \frac{\text{Adjusted net debt}}{\text{Funds flow from operations}} = 3.8$$

$$\text{FFO interest cover} = \frac{\text{Funds flow from operations}}{\text{Interest paid - Interest received}} = 7.2$$

$$\text{Capex / FFO} = \frac{\text{Capital expenditure}}{\text{Funds flow from operations}} = 88$$

$$\text{Debt / Ebitda} = \frac{\text{Adjusted debt}}{\text{Ebitda}} = 3.5$$

V. Economic & Financial Analysis.

Rating ratios

RATING CRITERIA

Sector risk profile		Financial profile			
	Sub-sectors	FFO adjusted leverage (x)	FFO interest cover (x)	Capex / CFO (%)	Debt/EBITDA (x)
AAA					
AA	Highly vertically integrated	< 2	> 7.5	70	< 1.5
A	Vertically integrated	3.0	6.0	70	3.0
BBB	Partially integrated	4.5	4.0	90	4.5
BB	Minimal integration, Emerging market risk.	6.0	< 3.5	100	6.0
B	Regulatory risk, Volatile cash flows, Concentrated assets	> 6.5	< 3.0	100	> 6.0

7.2

3.8

88

3.5

Source: www.Fitchratings.com

THANK YOU VERY MUCH