

The Risk Analysis of the Greatest Hungarian Energy Companies Between 2008 and 2013

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Abstract. My goal is to analyse the non systematic risk of the Hungarian greatest energy companies with a self-made database between 2008 and 2013. Study rationale: based on the net sales revenue of the greatest energy industry companies exploring the strengths and weaknesses of the operation with a through risk analysis. The objectives: is to draw attention to the energy industry complex risk analysis and latent corporate crisis most frequent indication of weakness. Methods: I analyze the risk with mono- and multi-causal indicator systems and financial methods with Microsoft Excel and EkoWIN software. Database: from the balance sheet and income statement of the examined companies 21. Based on group of indicators I-V develop the total rating of risk mix of the energy industry excellent rating. Conclusions: The corporate risk management is particularly important today. Detection and evaluation of non-systematic risk levels to manage also absolutely necessary.

Keywords: non systematic risk, capital structure, asset financing, static and dynamic liquidity, operational and financing dynamics

1 Introduction

The energetics industry greatest segment of the Hungarian economy. 23 percent of companies in the TOP 100 list are energy sector, intended mainly natural gas and electricity trading. The sales increase the most since the 2008 crisis, the energy company MOL. I examine in this work the risk of the 21 energy companies, which belong into the TOP 100 between 2008-2013. Based on the net sales revenue of the greatest energy companies as growth opportunities for testing or exploring the strengths and weaknesses of the operation can not do without a through analysis of risk level. We are investigating this accounting approach.

To say the question and include the following topics:

1. How has risk of sales?
2. How did business and operational risk?
3. How did financing and investments risk?
4. What are result is seen the calculation of risk mix?

In the 1.1. section of the study I overview the literature, method of the analysis and database. After I publish the empirical results.

1.1. Literature background, database and methodology

I examine the risk only in accounting terms. so first I analyze the income statement (Brigham-Ehrhardt, 2013, Katits, 2007, Wahlen-Baginski-Bradshaw, 2010) and balance sheet expect some risk ratio (Katits, 2007, Robinson-Henry-Pirie-Broihaahn-Cope, 2015).

Database: the Hungarian TOP 100's 21 energy companies (MOL, EON FÖLDGÁZ, MVM, EON_H – Energia, PANRUS, EON – Energia, TIGÁZ, FŐGÁZ, Budapesti Elektronikai Művek, MOL energia, GDF SUEZ, Paksi Atomerőmű, MVM – Partner, FGSZ, MAVIR, DÉMÁSZ, Áramszolg., ELMŰ, Mátrai Erőmű, ÉMÁSZ). The balance sheet and income statement data are downloaded from the e-statement (www.e-beszamolo.hu). The calculations were performed with Microsoft Excel (Mayes & Shank, 2014) and EkoWIN financial analyst forecasting and evaluating expert software. It consists of the evaluation of complex economic performance in the period between 2008 and 2013. Evaluation of the Hungarian energetics industry includes an analysis of the extent of the non-systematic (corporate) risks. It is evaluation of so-called risk mix is done, which consists of I-V. groups of indicators: I. Capital structure; II. Asset financing; III. Static liquidity; IV. Dynamic liquidity; V. Operational and financing dynamics (Figure 1-6) value between 0-100 points were qualified. With the EkoWIN financial analyst forecasting and evaluating peer software we have received on the basis of the risk mix. An index group A-B-C-D-E classification based on the following threshold values are:

- 0.0 – 19.9 points = (E) = critical
0.0 – 4.9 points = E*; 5.0 – 9.9 = E**; 10.0 – 14.9 = E***; 15.0 – 19.9 = E****;
- 20.0 – 39.9 points = (D) = problematic
20.0 – 24.9 points = D*; 25.0 – 29.9 = D**; 30.0 – 34.9 = D***; 35.0 – 39.9 = D****;
- 40.0 – 59.9 points = (C) = acceptable
40.0 – 44.9 points = C*; 45.0 – 49.9 = C**; 50.0 – 54.9 = C***; 55.0 – 59.9 = C****;
- 60.0 – 79.9 points = (B) = good
60.0 – 64.9 points = B*; 65.0 – 69.9 = B**; 70.0 – 74.9 = B***; 75.0 – 79.9 = B****;
- 80.0 – 100 points = (A) = excellent
80.0 – 84.9 points = A*; 85.0 – 89.9 = A**; 90.0 – 94.9 = A***; 95.0 – 100 = A****.

2 Analysis and results

A industry viability depends on how the revenue generating ability. The net sales revenue from the developments we can be assessed the possibility of the main sources of profitability (Katits-Koltai-Szalka, 2013). The volatility of the net sales revenue crisis weak signal, which is the expression of the sales risk. In the period 2008-2013, the net sales decreased only in 2009, but then rises (Table 1).

Falling and/or rapidly changing rates of return business risk expressions, which again the crisis weak signal. The operating profit, ROA (**R**eturn **o**n **A**ssets). ROE (**R**eturn **o**n **E**quity) and ROI (**R**etun **o**n **I**ntestments) developments are shown in Table 1.

Table 1 contains the energetics industry ROA rates, which shows the after-tax profit return on total assets. Obtained is low, especially below 3-6% values of Hungarian TOP 100's 21 greatest energy companies. The ROI rates, which shows the after-tax profit return on invested assets. We have been in the energetics industry is much better value compared to the ROA values here. The ROE ratios evolution, which refers to profits after tax return on equity. Unfortunately, the rate of return of the owners magnitude of the years of the period considered valid central bank base rate barely reached or not!

Table 1: The Hungarian TOP 100's 21 greatest energy companies – Risk Factors (2008-2013)

Denomination	2008	2009	2010	2011	2012	2013
Net Sales Revenue (NSR in tousand HUF)	7.301.353.561	6.920.986.381	7.499.679.780	7.770.095.652	7.693.392.248	7.727.507.000
Growth rate of NSR (%) Sales Risk	27.4	-5.2	8.4	3.6	-1.0	0.4
Growth rate of operating profit (%)						
Business and Operational Risk	-12.6	71.8	-47.2	73.2	-7.0	-41.1
Degree of the liquidity I	0.3	0.3	0.3	0.3	0.3	0.4
Degree of the liquidity II	1.5	1.3	1.1	1.1	1.1	1.1
Degree of the liquidity III						
Risk of Liquidity	1.9	1.6	1.4	1.4	1.4	1.4
ROA – Risk of Total Assets	5.9	-0.3	6.1	4.1	3.3	-1.0
Pre-interest pretax profit margin (%)	5.6	4.6	7.3	7.6	4.2	-3.7
Asset turnover (not %)	1.1	1.1	1.0	1.0	1.1	1.1
Interest burden (%)	72.0	85.1	72.6	83.2	82.7	69.1
Tax burden (%)	85.6	46.7	86.1	84.2	77.8	100.0
Net profit margin (%)	5.6	-0.3	6.0	4.1	3.2	-0.9
ROE – Financing Risk	10.0	-0.6	10.6	7.3	5.9	-1.8
Equity multiplier (not %)	1.7	1.8	1.7	1.8	1.8	1.8
Debt/Equity ratio (%)	0.2	0.2	0.2	0.2	0.2	0.2
ROI – Risk of the Investments	10.0	-0.5	9.1	6.3	5.2	-1.6
Invested capital turnover (not %)	1.8	1,7	1,5	1,5	1,7	1,8

Adapted from Katits-Szalka, 2015, modified.

Let us focus the balance sheet items for which we can calculate the liquidity! Since balance sheet items, is expected only to calculate and analyze static liquidity (for the point in time) three grades. Calculation of the liquidity ratios to find the answer to the following question: What extent current assets groups provide coverage for short-term obligations of the sectors? Degree of the liquidity III or current ratio shows the value corridor within which the sector's current assets are reduced without endangering that the payment of short-term liabilities. As shown in Table 1 the value of this indicator – in the context of financial institutions credit ratings – can be said to be good value at around 1.4. The quick (assid-test) ratio or degree of the liquidity II is similar to the current ratio except that it excludes inventory, which is usually the least-liquid current assets. If we consider this to very low values degree of the liquidity I, we're supporting this with our conclusion: This rate is not the value of inventories and receivables in the most liquid current assets (cash and short-term, as well as securities held for trading) dividing the total short-term liabilities. These values are relatively favorable in the case of 21 greatest energy companies.

$$\text{Liquidity degree III or current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

$$\text{Liquidity degree II or quick (assid-test) ratio} = \frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities}}$$

$$\text{Liquidity degree I} = \frac{\text{Current assets} - \text{Inventories} - \text{Receivables}}{\text{Current liabilities}}$$

In Table 1, by examining of the banking golden rule following questions to answer: Will the sectors have sufficient own capital, that is, not more foreign capital and whether to improve their capital

- **Net profit margin** is the after tax profit per HUF of sales (Net profit/Net sales revenues).
- **Asset turnover** shows asset utilization efficiency (Net sales revenues/Total assets).
- **Equity multiplier** shows financial structure or leverage effect (Total assets/Owner's equity). If the equity multiplier greater than 1, then in the sector next owner's equity involvement more and more foreign source occurred.

Again way of example, we compare **components of the ROE rates of the energetics sector** in 2012 and 2013 in the following:

In year 2012: $ROE = 5.9\% = 3.2\% \text{ Net Profit Margin} \times 1.1 \text{ Asset Turnover} \times 1.8 \text{ Equity Multiplier}$.

In year 2013: $ROE = -1.8\% = -0.9\% \text{ Net Profit Margin} \times 1.1 \text{ Asset Turnover} \times 1.8 \text{ Equity Multiplier}$.

So we can conclude that the **greatest energy companies, the falling value ROE profitability deteriorating net (loss) reached while the total asset's ability to generate sales revenue did not improve, while relatively significant foreign source financed assets.**

An expanded version of the DuPont model was created to break down net profit margin even further. This advanced version lets you see how interest payments on debt affects net profit margin. There are a lot of formulas below, which you can skip if you just want to get to the final formula, but the **five step DuPont model** in an easy to understand form is given as:

$$ROE = (\text{Tax Burden}) \times (\text{Interest Burden}) \times (\text{Operating Margin}) \times (\text{Asset Turnover}) \times (\text{Equity Multiplier})$$

which is equivalent to

$$ROE = (\text{Net Profit/Pretax Profit}) \times (\text{Pretax profit/EBIT}) \times (\text{EBIT/Sales}) \times (\text{Sales/Total Assets}) \times (\text{Total Assets/Owner's Capital})$$

BUSINESS, OPERATIONAL, TOTAL INVESTMENTS AND FINANCING RISK

- Tax burden is the proportion of profits retained after paying taxes.
- Interest burden shows how interest is affecting profits. If a company has no debt, the ratio will be 1.
- Operating profit margin is the operating profit per HUF of sales.
- Asset turnover shows asset utilization efficiency.
- Equity multiplier shows financial structure (leverage effect).

When tax burden, interest burden and operating margin are multiplied together, it gives you net profit margin, and now, it has been broken down further to show you how tax and interest affect ROE.

In year 2012: $ROE = 5.9\% = 0.778 \text{ Tax Burden} \times 0.827 \text{ Interest Burden} \times 4.2\% \text{ Operating Margin} \times 1.1 \text{ Asset Turnover} \times 1.8 \text{ Equity Multiplier}$

With the EkoWIN financial analyst, forecasting and evaluating peer software we have received on the basis of the composition of the risk mix-indicators presented in Table 2. Based on the calculated indicators (Table 2) value between 0-100 points were qualified energetics sectors.

Table 2: The Hungarian TOP 100's 21 greatest energy companies – The Indicators and Values of the Risk Mix (2008-2013)

Indicators	2008	2009	2010	2011	2012	2013
I. CAPITAL STRUCTURE (%)						
Owner's capital coverage	57.8	59.6	58.3	58.0	58.8	55.7
Dynamics of extended owner's capital	-3.6	7.0	2.3	2.5	-1.9	-2.0
Owner's capital coverage within in long term capital	79.9	82.9	81.1	82.8	82.6	80.6
Owner's capital /Invested Assets	87.2	88.1	87.1	90.7	90.9	88.8
Invested Assets/Long term liabilities	456.6	551.6	490.6	530.9	523.9	467.5
II. ASSET FINANCING (%)						
(Current assets – Current liabilities)/Total sources	0.0	0.0	0.0	0.0	0.0	0.0
(Current assets – Current liabilities)/Owner's capital	0.0	0.0	0.0	0.0	0.0	0.0
III. STATIC LIQUIDITY (%)						
Prompt liquidity ratio	2.9	1.7	2.1	1.4	1.7	2.2
Quick liquidity ratio	3.6	3.1	2.8	2.7	2.6	2.3
Current liquidity ratio	1.5	1.4	1.5	1.4	1.5	1.5
Global liquidity ratio	1.2	1.2	1.2	1.2	1.2	1.2
IV. DYNAMIC LIQUIDITY (%)						
Cash flow coverage of total liabilities	4.9	33.1	21.9	24.3	19.4	5.9
Cash flow coverage of short term liabilities	9.6	59.6	41.4	41.3	34.0	10.8
Estimated length of long term capital deficit (years)	0.0	0.0	0.0	0.0	0.0	0.0
V. OPERATIONAL AND FINANCING DYNAMICS (IN DAYS)						
Payment period of accounts payables	13.3	14.7	14.2	16.5	14.3	20.8
Days sales outstanding	16.7	17.6	17.6	19.9	17.9	19.1
Days of inventories held	19.4	23.7	28.3	27.8	26.7	27.3
Accounts payables/(Claims for customer + Inventories)	35.1	33.2	29.6	32.8	30.3	43.5

Own construction based on the software EkoWIN

I. Rating of the CAPITAL STRUCTURE

Here I examine whether there is sufficient owner's capital of the energetics industry. to improve the capital supply and whether there is adequate coverage of long-term debt repayment. There were obtained the following rating categories:

- Excellent: 2008, 2009, 2010, 2011, 2012 and 2013, but we see a decreasing trend in 2013 (Figure 1).

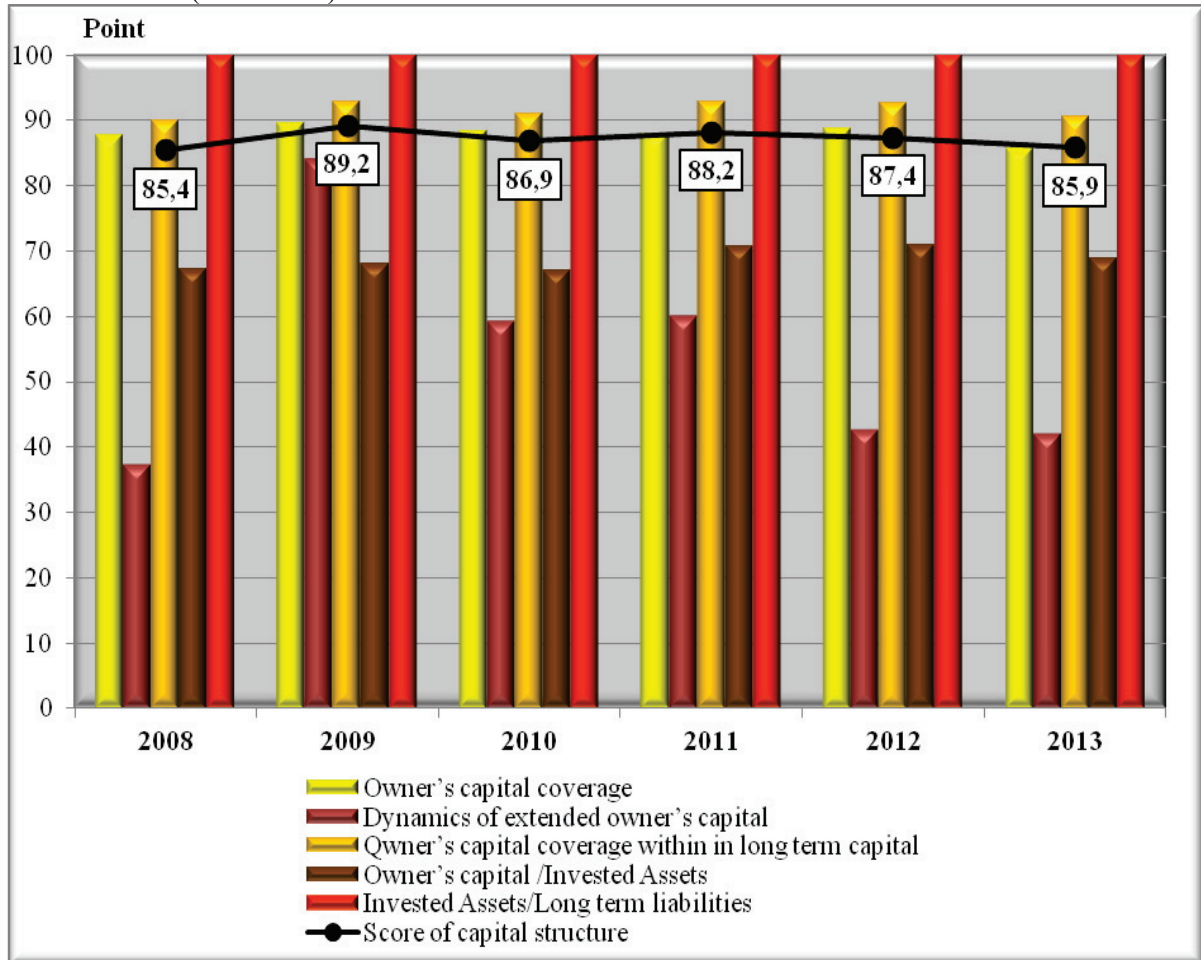
So clearly shows that the operation of 2009 after the global financial-economic crisis we be judged as acceptable, while after this appreciate good, that was in a better position. but deteriorated during the value in 2012 and 2013.

II. Rating of the ASSET FINANCING

Here, check compliance with the golden rules of financing, that is the form of cross financing (at current resources to finance invested assets) are evaluated as negative. There were obtained the following rating categories:

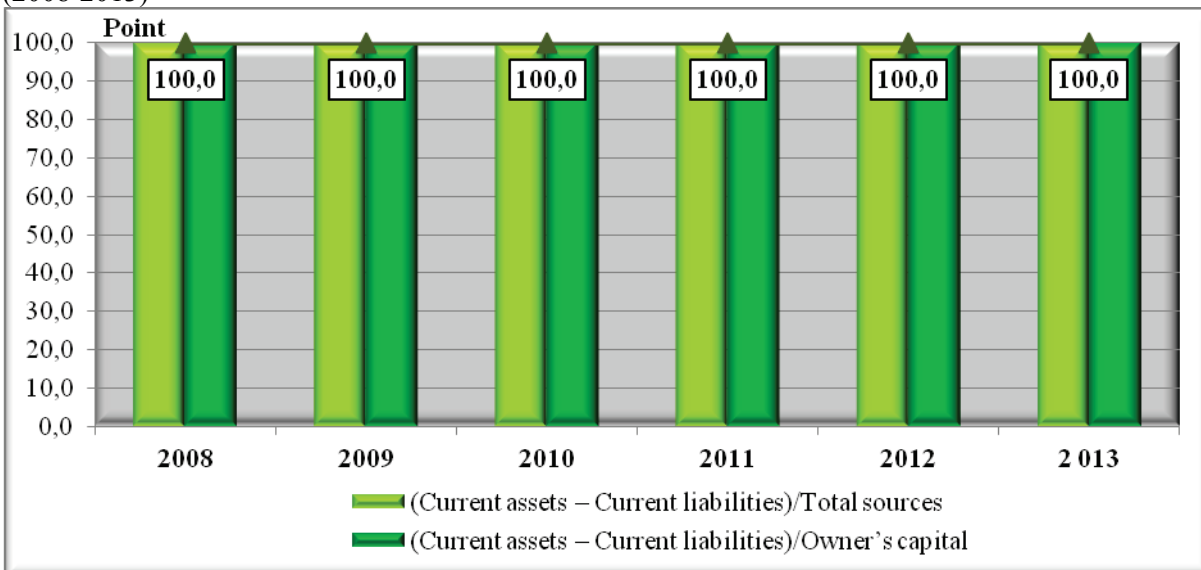
- Excellent: 2008, 2009, 2010, 2011, 2012 and 2013 (Figure 1).

Figure 1: The Hungarian TOP 100's 21 greatest energy companies – Score of the **CAPITAL STRUCTURE** (2008-2013)



Own construction based on the software EkoWIN

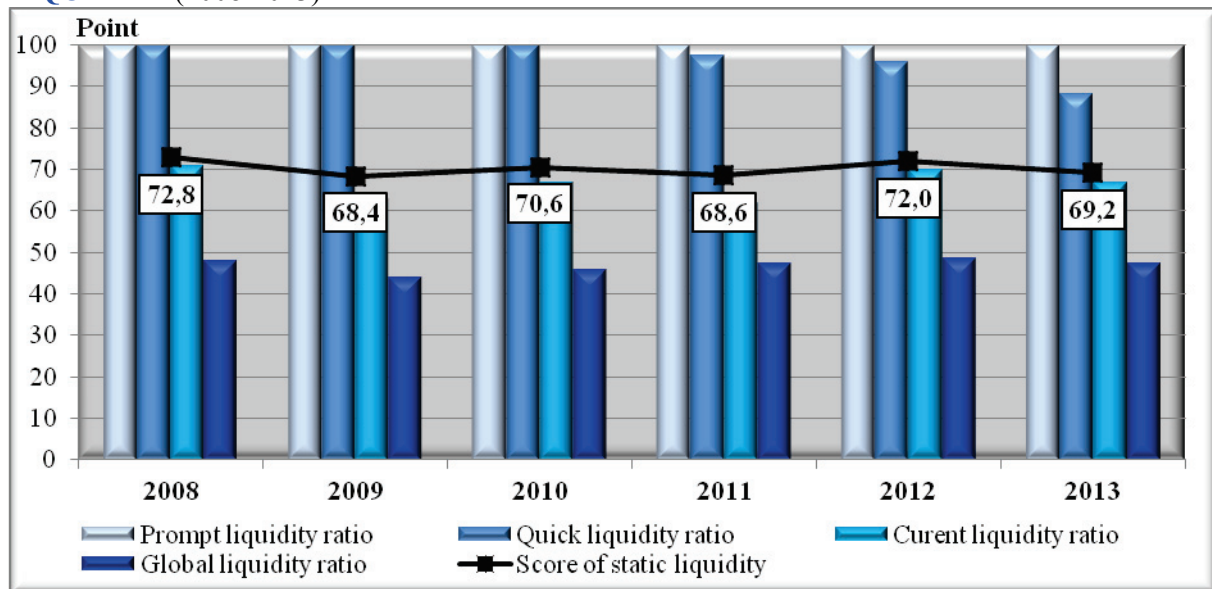
Figure 2: The Hungarian TOP 100's 21 greatest energy companies – Score of **ASSET FINANCING** (2008-2013)



Own construction based on the software EkoWIN

Thus, the performance of Hungarian TOP 100's 21 greatest energy companies between 2008 and 2013 is excellent.

Figure 3: The Hungarian TOP 100's 21 greatest energy companies – Score of the **STATIC LIQUIDITY** (2008-2013)



Own construction based on the software EkoWIN

III. Rating of the **STATIC LIQUIDITY**

Here ratings of four indicators resulting from the balance sheet of liquidity looking for answers to the following questions: Do we have enough cash in your monthly laborwages due and payments to fiscal? Here, four liquidity measures qualified by looking for answers to the following questions: Do we have enough cash in your monthly labor costs due and payments to fiscal? Will this be enough cash flow to the accounts receivable and suppliers pay? The total how much current assets to cover short-term obligations provided for all staff? What happens if the active and passive accruals and provisions balances are taken into account? – In response to these questions after the test the following numerical rating obtained:

- Good: 2008, 2009, 2010, 2011, 2012 and 2013 (Figure 3).

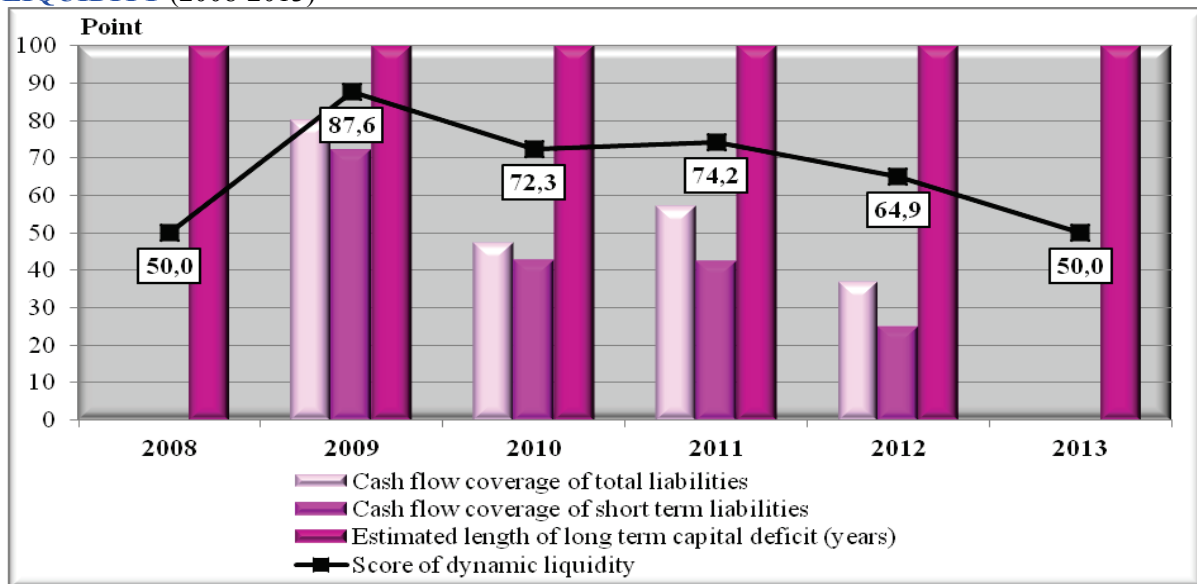
Good every year between 2008 and 2013.

IV. Rating of the **DYNAMIC LIQUIDITY**

Here, obtain information about the energetics industry's gross cash flow/liabilities the following rating categories:

- Acceptable: 2008 and 2013.
- Good: 2010, 2011 and 2012.
- Excellent: 2009 (Figure 4).

Figure 4: The Hungarian TOP 100's 21 greatest energy companies – Score of **DYNAMIC LIQUIDITY** (2008-2013)

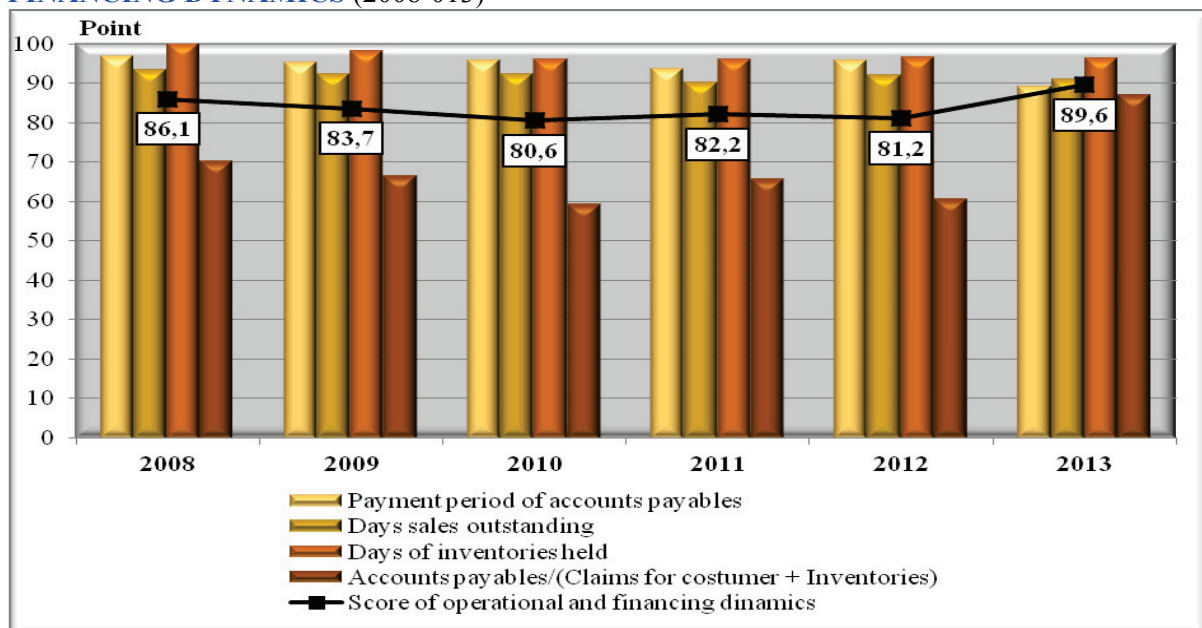


Own construction based on the software EkoWIN

V. Rating of the **OPERATIONAL AND FINANCING DYNAMICS**

Here, the customer-supplier dynamics sets (turnover time) and the proportion of financing is qualified. Here, the (measured in net sales revenue) device efficiency and working capital management indicators on turnover speed (turnover and turnover time) is performed calculations and evaluations. There were obtained the following rating categories: excellent every year between 2008 and 2013. Fortunately, we see a rising trend from 2012 (Figure 5).

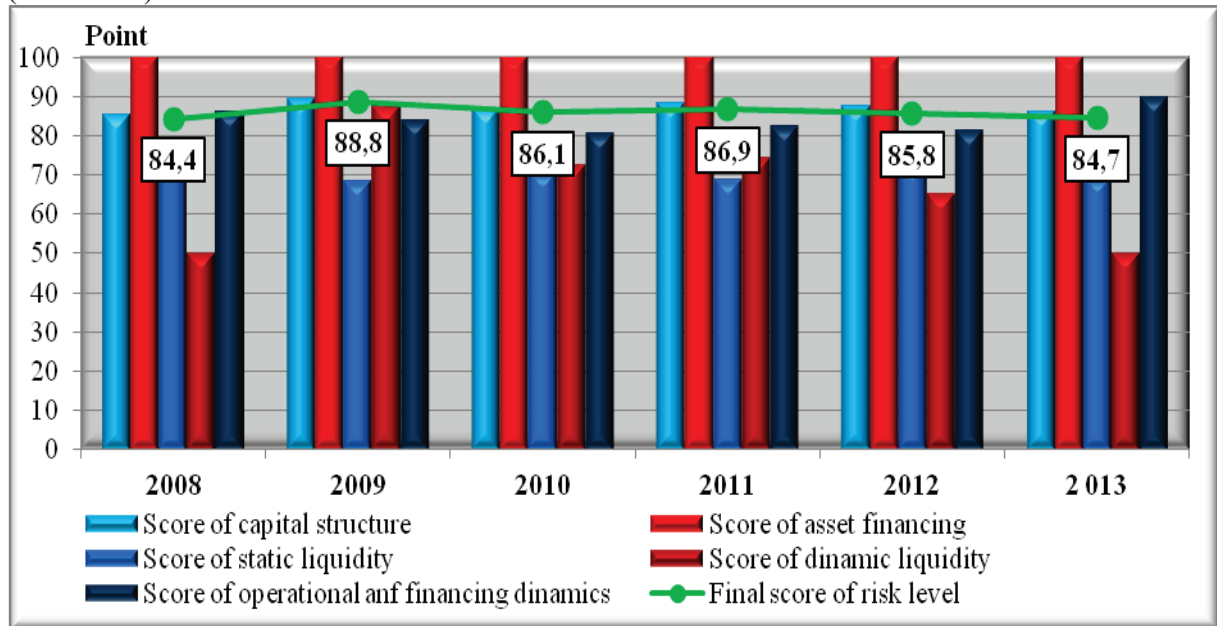
Figure 5: The Hungarian TOP 100's 21 greatest energy companies – Score of **OPERATIONAL AND FINANCING DYNAMICS** (2008-2013)



Own construction based on the software EkoWIN

In summary: based on group of indicators I-V. develop the total rating of risk mix of the Hungarian TOP 100's 21 greatest energy companies excellent rating between 2008 and 2013. Unfortunately, we see a decreasing trend from 2013, but it gets excellent rating between 80-100 points (Figure 6). The operation of the 21 greatest energy companies is characterized by moderate profitability and very high security level. The ratio of cash flow/short-term liabilities low (10.8% in 2013), so the repayment of short-term liabilities problem.

Figure 6: The Hungarian TOP 100's 21 greatest energy companies – Total Score of the Risk Mix (2008-2013)



Own construction based on the software EkoWIN

3 Conclusions

This paper, based on theoretical knowledge, researched the factors which affected the risk of the Hungarian TOP 100's 21 greatest energy companies in 2008-2013 period.

Results and findings: If we compare the results obtained in the evaluation of the risk mix with net sales development, it we can ascertain that, despite the rise in net sales revenue in the mix of risk values are reduced. So the risk mix of values presented in spite of the downward trend in net sales revenue growth rates.

Low operating and net profitability levels are of the greatest energy companies. Do not forget two things here! One is that the net income (should) provide coverage for the creditors repayment requirements, ownership's dividend expectations more growth-enhancing investments as well! The other is that the relatively high levels sales revenue in no way reflect the high profit generating ability of the company.

If we compare the results obtained in the evaluation of the risk with net sales development (Table 1), it we can ascertain that, despite the rise in net sales revenue values of the risk mix are reduced. So values of the risk mix (Figure 6) presented in spite of the downward trend in net sales revenue growth rates (Table 1).

The results in Table 1 showed a low net profitability levels achieved. Do not forget two things here! One is that the net income (should) provide coverage for the creditors repayment requirements, ownership's dividend expectations more growth-enhancing investments as well! The other is that the relatively high levels sales revenue in no way reflect the high profit generating ability of the company. This is business and operational risk.

Based on group of indicators I-V develop the total rating of risk mix of the energy industry excellent rating (but in the year 2008 and 2013 acceptable liquidity risk).

Conclusions: The corporate risk management is particularly important today. Detection and evaluation of non-systematic risk levels (which requires the techniques – sensitivity analysis, risk-benefit balance, portfolio-techniques and simulation modeling – application) to manage also absolutely necessary. They are like warning and risk indicators to avoid potentially incorrect way and the identification of the vehicle industry sector “benchmarks” serve.

We see strong and weak points of the management (Table 1) based on the examination results published. Companies belonging to the energetics industry in competitive market exist, shortened product cycles that require urgent and flexible corporate responsiveness to changing market scenarios are implemented. This requires strategic, financial and operational management, growing and complex change management: strategic reorientation, financial and organizational restructuring, which is preventive, reorganization and reactive instruments of the 'turnaround' management (Katits, 2010, 95-96, 279-294, Noszkay, 2009, 113-115) included.

The 2008 global financial crisis has been the focus of risk management and financial stability. This analysis was proved based on the calculations. A risk management system is based on a three-interface systems, which build on each other, but also can mutually influence each other. These are:

1. The risk controlling serves to inform decision-makers about risk in time in order to have time to complete the (counter) measures. Risk factors are in the determination of the internal and external distinguished risk areas. The internal risk areas – financial point of view – on the examined aspects are combined.
2. The monitoring includes ensuring the smooth management processes.
3. The early warning system will provide both existing as well as future risks of detection, which is based on a complex logical built on one another scorecard.

The corporate and project risk management is particularly important today. Detection and evaluation of non-systematic risk levels (which requires the techniques – sensitivity analysis. risk-benefit balance. portfolio-techniques and simulation modelling – application) to manage also absolutely necessary.

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