FINANCIAL PERFORMANCE OF CZECH ENERGY UTILITIES

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ABSTRACT

Financial benchmarking is a useful tool to assess overall performance of a set of firms. Post-communist countries of Central and Eastern Europe, such as the Czech Republic, have only a short history of modern regulation of energy markets. This paper focuses on the years 2005-2009, which has been the second regulatory period in the Czech Republic and where many important events, like the so-called legal unbundling, took place. We analyse the performance of Czech electricity and natural gas distribution companies in terms of economic value creation, financial profitability, asset utilization, liquidity, and solvency, we calculate aggregate indicators and compare the firms with each other. Subsequently, we compare the performance of the Czech regulated energy sector with the industry as a whole, including unregulated firms in mining and extraction, manufacturing, energy, water and waste industry.

KEY WORDS

utility performance, performance measuring, energy industry performance

JEL classification: L9, G38

INTRODUCTION

The regulation of public utilities includes regulation of market entry and exit conditions, price and quality level, and the imposition of the public service obligations. These measures have certain implications on the regulated market. Assuming that these firms provide fundamental and important services, it is desirable to measure their performance as individual organisations or as a whole sector. In this paper, we focus on Czech electricity and gas distribution companies. Post-communist countries of Central and Eastern Europe, such as the Czech republic, have only a short history of modern regulation and lack of data and long-time series is the main challenge of regulatory practice. This paper examines the period of 2005-2009, ie the second regulatory period in the Czech Republic. We analyse the performance of these firms in terms of economic value creation (EVA), financial profitability, asset utilization, liquidity, and solvency. We also deal with the net working capital which refers to the financial risk of the companies. Using the so-called method of distance from a fictitious object, we calculate aggregate indicators and compare the firms with each other and with the industry as a whole, including unregulated firms in mining and extraction, manufacturing, energy, water and waste industry.

Czech energy distribution market

The Czech energy market has been liberalized since 2000 and between 2005-2006, a legal unbundling (separation of distribution activities from other activities, such as electricity production or gas storage) has been implemented in the Czech Republic. Since 2006, Czech households have had the right to choose their supplier. It is important to note that companies within the same industry are not in direct competition – households can choose their supplier, not the distribution system operator, which has a monopoly within its area of scope.

The Czech electricity transmission network is operated by a sole state-owned operator ČEPS whereas the regional distribution is ensured by three operators: ČEZ Distribuce, E.ON

Distribuce and PRE Distribuce. All three regional distributors were established between 2005-2006 as a result of unbundling. As to the Czech natural gas market, the national gas transportation network is operated by the Net4Gas company (former RWE Transgas Net) whereas the regional distribution is ensured by 6 operators: PP Distribuce, E.ON Distribuce, RWE Energie (successor of a merger of STP Net, SČP Net, ZČP Net in 2009), VČP Net, JMP Net and SMP Net. Except for PP Distribuce and E.ON Distribuce, all operators are members of the RWE Transgas group. Local distribution is ensured by more than 100 operators, which are not included in the analysis.

Regulatory framework

The Czech energy sector (electricity, gas and heat industry) is regulated by the Energy Regulatory Agency (Energetický regulační úřad, ERÚ). The Agency was founded in 2001 and the regulatory framework has been changing in the past years. The first three-year regulatory period took place between 2001-2004, the second regulatory period between 2005-2009 and now the third five-year regulatory period is running. Before 2001, the regulation was based on a traditional cost-of-service method. In this paper, we focus on the second regulatory period.

In order to control price level more efficiently, since 2001, the Agency has been impementing the so-called RPI-X regulation based on a revenue-cap mechanism. This mechanism adjusts regulated company's prices according to a revenue cap that reflects price inflation (RPI-factor) and changes in productivity (X-factor). The price setting is based on a regulatory formula, whose parameters, such as risk-free rate, market risk premium, beta coefficient, leverage or WACC, are set by the Agency. There are many ways to determine these parameters, which is subject of discussion between the Agency and the regulated companies. The parameters remained unchanged for the whole five-year regulatory period. The few companies operating in the price-regulated energy sector benefit of a considerable state-guaranteed market power.

Methodology

Assessing financial performance is essential when comparing regulated industries with other industries. The companies are required by law to provide annual reports with financial statements which are the source of data for our analysis. Traditionally, financial analysis is based on five major areas: profitability, asset utilization, liquidity, solvency and market value. A modern approach also includes value indicators: economic value added (EVA) and market value added (MVA). As the evaluated firms are not listed on stock exchange, it is impossible to determine their market value indicators and MVA. We based our analysis on the following indicators: EVA/capital ratio, return on equity (ROE), return on assets (ROA), return on sales (ROS, also called profit margin), asset turnover, debt ratio, current ratio and net working capital/assets ratio. Weights of these criteria were chosen so that each area of performance (value creation, profitability, asset utilization, liquidity and solvency) had an equal weight. Cost of equity was determined using the CAPM model. Risk-free rate for each year was determined as the average yield of 10-year Czech government bonds. Beta coefficient for each year is calculated for the sector Utilities using STOXX Eastern Europe market indices. For each year, expected market return for is calculated using compound annual growth rate of Prague Stock Exchange PX Index in preceding ten years.

Tab. 1 Selected performance indicators

Indicator	Formula	Weight
EVA/Capital	(NOPAT – WACC × Capital employed) / Capital	3

Return on equity (ROE)	EBIT / Equity	1
Return on assets (ROA)	EBIT / Total assets	1
Return on sales (ROS)	EBIT / Sales	1
Asset turnover	Sales / Total assets	3
Debt ratio	Total borrowings / Total assets	3
Current ratio	Current assets / Short-term liabilities	1.5
NWC/Assets	(Current assets - short-term liabilities) / Total assets	1.5

In order to determine an overall ranking, we used the method of distance from a fictitious object. We calculate

$$u_{ij} = \frac{x_{ij} - x_{pj}}{\sigma_{xj}}, \text{ resp. } u_{ij} = \frac{x_{pj} - x_{ij}}{\sigma_{xj}}$$

for criteria which are positive for higher, resp. lower values. x_{ij} denotes the value of the j-th indicator for the i-th firm, x_{pj} denotes the average for the j-th indicator in the set of firms, and σ_{xj} is the standard deviation for the j-th indicator in the set of firms. Then we model a fictitious object with the best values amongst all the firms in the set and for each firm and we calculate the weighted Euclidean distance from this fictitious object as

$$k_i = \sqrt{\frac{\sum_{j=1}^{n} (u_{ij} - u_{oj})^2 \times p_j}{\sum_{j=1}^{n} p_j}},$$

where u_{oj} is the normalized value of criterion j of the fictitious object and p_j denotes the weight of criterion j. The overall ranking is determined by ranking companies according to their distance k_i (the best firm has the lowest k_i). The same methodology was used when comparing the performance of the assessed firms with the industry.

Finally, we analyse the impact of year-to-year change of ROE components upon the total year-to-year change of ROE using the so-called logarithmic method. ROE can be rewritten as

$$ROE = \frac{EBIT}{E} = \frac{EBIT}{S} \times \frac{S}{A} \times \frac{A}{E}.$$

where E denotes equity, S sales and A total assets. Let $I_{X/Y}$ denote the relative change of the factor X/Y. We can express the change of ROE due to the change of an individual factor X/Y as

$$\Delta ROE_{X/Y} = \frac{\ln(I_{X/Y})}{\ln(I_{ROE})} \Delta ROE.$$

Results and analysis

Our analysis is based on parameters that differ from those provided by the Agency; it is important to note that these parameters (risk-free rate, beta coefficient, market risk premium, cost of equity etc.) have been changing over time and differ in each year. The data for the 12 selected companies was collected from annual reports and related to the period 2005-2009. The data on industry were taken from the Czech Ministry of Industry and Trade

and Czech Statistical Office. The financial performance varies within the distribution sector and the sample is very heterogeneous (the coefficient of variation is higher than 50% for each criterion). The values of k_i for each of the twelve firms are presented in Tab. 2.

Electric utilities had a lower asset turnover and lower level of debt than natural gas utilities and had a worse ranking. Transmission system operators - companies with most monopoly power (Net4Gas and ČEPS) ranked the best and worst, which would suggest that firm size does not affect the overall ranking. Members of RWE Transgas group have the best ranking, probably due to some support from their managing entity. They have the best asset turnover and profitability, but their aggresive financial strategy implies negative NWC/Assets ratio (floating debt) which, in theory, results in higher financial risk.

Tab. 2 Overall k_i ranking of energy utilites (average values over 2005-2009) [1]

	EVA/ CAP	ROA	ROE	ROS	Asset turnover	Debt ratio	Current ratio	NWC/ Assets	k_i
Net4Gas	0,014	9,13%	11,01%	55,40%	0,1648	0,8727	8,4202	0,1296	**2,965**
SČP Net	0,000	7,95%	11,50%	4,02%	1,5871	0,4194	0,5536	-0,1296	**3,257**
STP Net	-0,015	5,83%	10,94%	3,72%	1,2809	0,4415	0,8876	-0,0446	**3,383**
ZČP Net	-0,016	5,25%	10,94%	3,58%	1,2715	0,5455	0,7046	-0,1059	**3,389**
SMP Net	0,069	14,91%	18,93%	7,44%	2,0659	0,1285	1,2195	0,0379	**3,579**
VČP Net	0,030	10,72%	13,80%	5,83%	1,8775	0,1861	1,3116	0,0562	**3,732**
ČEPS	0,031	11,37%	14,53%	15,09%	1,1892	0,5997	1,7261	0,0562	**3,821**
JMP Net	0,032	8,66%	14,25%	5,01%	1,5698	0,0391	0,4549	-0,1943	**3,988**
E.ON Distribuce	0,029	8,42%	13,72%	25,78%	0,3350	0,2581	1,1122	0,0155	**4,188**
PP Distribuce	-0,006	5,04%	9,27%	18,33%	0,5345	0,3463	1,2520	0,0298	**4,234**
PRE Distribuce	-0,016	6,01%	8,02%	17,68%	0,3731	0,1976	3,2565	0,0387	**4,253**
ČEZ Distribuce	-0,047	2,60%	3,88%	8,22%	0,3108	0,2483	1,1847	0,0258	**4,561**

A comparison with other industries – mining and extraction, manufacturing, energy and water and waste industry – showed a very slight performance gap in favor of other industries. Tab. 3 shows the averace values of the performance indicators for the distribution companies and for the industry as a whole. Energy utilites seem to have lower profitability in terms of ROE and ROA. Regulated utilities ave a higher profit margin (ROS), which is compensated by a lower asset turnover, since these industries are highly capital intensive. Leverage measured by debt ratio is slightly lower for the Czech utilites, as well as liquidity. Working capital management of energy utilities is relatively aggresive.

Tab. 3 Average values of selected indicators for Czech distribution companies

	EVA/ CAP	ROA	ROE	ROS	Asset turnover	Debt ratio	Current ratio	NWC/ Assets	k_i
Energy distribution companies									
2005	-0,019	6,86%	10,40%	10,41%	0,659	0,340	0,971	-0,0046	**1,21**
2006	0,017	6,92%	9,99%	12,17%	0,569	0,308	1,228	0,0284	**1,03**
2007	-0,010	6,64%	9,30%	13,41%	0,495	0,286	1,354	0,0479	**1,21**
2008	-0,031	6,13%	9,32%	12,76%	0,480	0,342	1,197	0,0344	**1,21**

[1] The table is illustrative; the data was evaluated for every year of the period.

2009	0,024	6,15%	8,92%	14,62%	0,421	0,310	1,384	0,0534	**0,93**
Industry									
	EVA/ CAP	**ROA**	**ROE**	**ROS**	**Asset turnover**	**Debt ratio**	**Current ratio**	**NWC/ Assets**	**k_i**
2005	-0,017	8,26%	12,34%	5,91%	1,230	0,332	1,380	0,1788	**0,37**
2006	-0,016	8,89%	14,24%	6,40%	1,230	0,337	1,480	0,2031	**0,73**
2007	0,018	10,73%	13,34%	7,05%	1,170	0,337	1,350	0,1585	**0,58**
2008	0,006	8,53%	10,64%	7,04%	1,210	0,358	1,320	0,1696	**0,37**
2009	-0,033	8,12%	10,47%	8,36%	1,07	0,32	1,500	0,1864	**0,80**

The decomposition of ROE reveals a decreasing trend of ROE both for energy utilities and the industry. The decline of energy utilities ROE is due mainly to the decreasing asset turnover. The leverage has also a minor negative impact. The decreasing ROE of the industry is caused especially by a decreasing leverage. The logarithmic decomposition is presented in Tab. 4.

Tab 4 Logarithmic decomposition of ROE

	ROE	**ROS**	**Asset turnover**	**A/E**	**ΔROE**	**ROE2/ ROE1**	**ROS2/ ROS1**	**AT2/ AT1**	**AE2/ AE1**	**ROS impact**	**Asset turnover impact**	**Financial leverage impact**
Energy distribution companies												
2005	10,40%	10,41%	0,659	1,515	-	-	-	-	-	-	-	-
2006	9,99%	12,17%	0,569	1,444	-0,40%	0,961	1,168	0,863	0,954	0,016	-0,015	-0,005
2007	9,30%	13,41%	0,495	1,401	-0,69%	0,931	1,102	0,871	0,970	0,009	-0,013	-0,003
2008	9,32%	12,76%	0,480	1,521	0,01%	1,002	0,951	0,969	1,086	-0,005	-0,003	0,008
2009	8,92%	14,62%	0,421	1,450	-0,40%	0,957	1,146	0,876	0,954	0,012	-0,012	-0,004
Industry												
2005	12,34%	5,91%	1,230	1,698	-	-	-	-	-	-	-	-
2006	14,24%	6,40%	1,230	1,809	1,90%	1,154	1,083	1,000	1,066	0,011	0,000	0,008
2007	13,34%	7,05%	1,170	1,618	-0,90%	0,937	1,101	0,951	0,894	0,013	-0,007	-0,015
2008	10,64%	7,04%	1,210	1,249	-2,70%	0,798	0,999	1,034	0,772	0,000	0,004	-0,031
2009	10,47%	8,36%	1,070	1,170	-0,17%	0,984	1,188	0,884	0,937	0,018	-0,013	-0,007

CONCLUSION

Given the importance of electricity and gas distribution, it is desirable to assess financial performance of energy utilities. In this paper we focused on twelve regulated companies operating on the Czech energy market and compared their relative performance using the method of distance from a fictitious object. The research focused on the period 2005-2009, which has been the second regulatory period in the Czech republic, and when many important events, like legal unbundling of activities, took place.

The companies were assigned dimensionless numbers representing their overall financial performance. The members of RWE Transgas group were more efficient than the rest of the energy sector, while ČEZ Distribuce, being the largest company in the sector, was also the least efficient one. The comparison with the industry as a whole suggests that regulated companies, in terms of financial performance, were slightly less efficient that the rest of the industry. The analysis confirms the well-known fact that regulated industries have a

relatively high profit margin which tends to offset their lower-than-average asset turnover. Regulated utilities have a lower profitability, level of debt and liquidity, and a more aggresive management of working capital. We also analysed the negative trend of ROE, which is due mainly to a decreasing asset turnover and financial leverage.

A more complex analysis of public utilities performance would also include the transfer of benefits to employees and customers, quality-of-service, impact on the environment etc. which goes beyond the scope of just financial benchmarking. Our analysis was based on a limited number of financial indicators. There are other ratios which could have been used, some of them functionally dependent (eg debt ratio and debt-to-equity ratio), as well as other areas of financial benchmarking (dividend policy, investment valuation, cash flow indicators). Financial benchmarking is an important part of efficient public utility regulation. Heterogeneous data quality and comparability, diversity of companies, choice of adequate methods remain the main challenges of financial benchmarking.

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