APPLICABILITY OF FINANCIAL EARLY WARNING INDICATORS FOR THE MAIN UTILITY AND PETROLEUM COMPANIES IN ROMANIA

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Abstract: *Setting up and analysis of financial early warning indicators for public or private companies is a much-debated scientific and practical subject. Theories and experiments, which led to the establishment of a common set of early warning indicators, are quite old, starting from the 1950's. These indicators came aggressively back into academic study and practice after the current world crisis. In the last years, several methods were tested by academic researchers and also by Banks and Audit agencies. The results seem to be different from one case study to another and seems to be linked with the financial data at the disposal of the researchers. On the other hand, even if the effects of the world financial crisis is diminishing, companies from Romania, especially those operating in field of utility and in the field of petroleum processing or distribution seem to be affected by other factors. These factors are decreasing prices for oil increase in the green energy production, initiation or extension of conflicts in primary production areas for coal, gas and oil such as Ukraine and Middle East. In this context, the current paper analysis the evolution of the early warning indicators for utility and petroleum production and distribution companies from Romania in the period 2011-2014. These elements are important since the selected companies are having a powerful national and regional influence over the economy and in the same time, these companies constitute primary contributors to Romania's GDP. The selected indicators include both classical liquidity or solvency indicators and financial or economic efficiency indicators. In order to be representative were selected the following indicators: current ratio, acid test, cash ratio, solvency ratio, ROE and ROA. The case study revealed the fact that the six financial indicators, initially considered, can constitute a basis for an financial early warning model, but in order to be successful these indicators must be accompanied by several other types of indicators both financial, macro-economic, sectorial and also non-financial qualitative or quantitative.*

Keywords: bankruptcy, solvency, efficiency, financial early warning indicators, ROE, ROA, corporate finance

JEL classification: G32, G11, G17.

1. Introduction

The research of financial early warning indicators for private or public companies is a study related directly to the issues of bankruptcy, insolvency or excessive debt of the company. In the last years, the early warning indicators have become strategic tools for the financial managers of the companies, for company owners, investors, bankers or for other professionals. The start for creation the of systematic bankruptcy and risk analysis started in 1960s with the works of Beaver(1966) and Altman (1968) and continued further in the next five decades with authors such as Deakin(1972), Ohlson(1980), Gilbert, Menon and Schwartz (1990), Altman(1993), Charitou, Neophytou and Charalambous (2004).

The methods for analysis changed drastically in the last years:

- starting from simple bankruptcy analysis pioneered by Beaver(1966) based on statistical methods
- Z-score model proposed by Altman (1968) a very popular model until now
- Multiple logistic regression models as proposed by Ohlson(1980)
- Neural networks championed by Charitou, Neophytou and Charalambous (2004

In the last years, all these methods were tested by academic researchers and also by Audit agencies. The results seem to be different from one case study to another and seems to be linked with the financial data at the disposal of the researchers. On the other hand in the last years different variables were introduced in bankruptcy and early warning analysis starting from economic efficiency indicators to non-financial indicators.

Taken into consideration the above, the authors of this paper are trying to establish several indicators, which can be part of an financial early warning method, adapted for big utility and petroleum production or distribution companies operating in Romania. The authors selected several financial early warning indicators, which can be suitable for the proposed model. These are indicators including both classical liquidity or solvency indicators (Droj, 2012) and financial or economic efficiency indicators (Droj, 2015).

2. Selection of the financial indicators suitable for the financial early warning detection method

In order to select these indicators were used several studies from the authors of the paper (Droj, 2012 and Droj 2015) and also from researchers which dealt with the same situation in the region: Rozsa (2012)

In order to be representative for the issues of financial efficiency, liquidity and solvency were selected the following indicators:

Liquidity indicators:

Current ratio (WCR) is used to analyse the ability of a company to pay its current liabilities its current assets. This ratio is also known as the working capital ratio.

$$WCR = \frac{Current\ assets}{Current\ Liabilities}$$

Acid test ratio or quick ratio – is considered the most important liquidity rate since its indicating both the liquidity and the position of the company.

$$QR = \frac{Current\ assets - Inventory}{Current\ Liabilities}$$

Cash ratio (CR) is an indicator which reflects the capacity of the company to pay the current debts based on its cash and cash equivalent. This ratio is considered very important for the banks.

$$CR = \frac{Cash\ and\ cash\ equivalents}{Current\ Liabilities}$$

Solvency ratio

- shows the extent to which total debts are covered by total assets, and reflects the security enjoyed by creditors, as well as the creditworthiness of the company(Droj, 2012).

$$Sv = \frac{Total\ assets}{Total\ debts} x100$$

Return Indicators as presented by Droj (2015) and Rozsa (2012):

The **Return of Assets (ROA)** reflects the difference between an economic result: net profit, known in specialized literature as EBIT and the assets used for its achievement (Pierre, 2004).

$$ROA = \frac{Net\ Pr\ ofit}{Total\ assets}$$

- The **Return on Equity (ROE)**, also known in French economic literature as "financial return rate", and abbreviated in the specialized literature as ROE. This indicator shows the efficiency of the capital invested by shareholders. ROE constitutes one of the most important return indicators, being used by company owners and potential investors in the investment decision-making process.

$$ROE = \frac{Net\ Pr\ ofit}{Equity}$$

These indicators are tested by analyzing the Financial Reports of the most important utility and petroleum companies from the Romanian Stock Market in the period 2011-2014.

3. Financial early warning indicators at utility and petroleum production and distribution companies from Romania in the period 2011-2014

The analyzed period (2011-2014) is a difficult period for the Romanian and international companies operating in the field of petroleum production and distribution and also for the utility companies which distribute and sometimes produce gas and electricity. The financial and current operations of these companies are influenced, directly, by the international turmoil on the oil market where the oil market prices dropped significantly and by several political crisis. One of the most important political crisis is the resurgence of the military conflicts in the Middle East and Northern Africa. Since, some of these conflicts are involving countries which are renowned oil producers, the situation is influencing also Romanian companies operating both in the utility, energy production and petroleum sectors.

Another political conflict which influenced the financial results of the Romanian companies was the conflict from Ukraine which caused turbulences in the prices of gas and coal. On the other side Romanian electricity production companies invested in the last years huge amounts in the development of the green production facilities, but from which very few were operational at the end of 2014.

As mentioned above the companies, selected were the following: SNGN Romgaz SA, CN Transelectrica SA, SC Nuclearelectrica SA, SC Electrica SA, SNTGN Transgaz SA, OMV Petrom SA, Conpet SA, Rompetrol Well Services SA, Petrolexportimport SA and Oil terminal SA.

Since these are public listed companies at Bucharest Stock Exchange the data was collected from Bucharest Stock Exchange (www.bvb.ro), the section of financial reports. Also were analysed the websites of these companies in order to confront the financial information. The study was based on analysis of the six financial indicators presented above based on the financial data reported in the period 2011-2014.

Table 1 Financial Early warning Indicators for Romgaz and Transelectrica

1. S.N.G.N. ROMGAZ S.A.

Indicators	2011	2012	2013	2014
WCR	16,11054	9,861569	5,930671236	6,74887617
QR	5,926254	4,107236	1,782740797	2,148768946
CR	0,287252	0,319813	0,056623346	0,110135777
Sv	8,132602	10,39519	8,84601902	7,657320531
ROA	9,44%	11,26%	9,50%	12,62%
ROE	10,77%	12,46%	10,71%	14,52%

2. CN TRANSELECTRICA SA

Indicators	2011	2012	2013	2014
WCR	1,085661	1,178136	1,521520363	1,652319111
QR	0,967362	1,09665	1,154228635	1,090118104
CR	0,125972	0,25371	0,284473774	0,190767691
Sv	1,880566	1,962358	2,029577069	2,070322181
ROA	2,12%	0,70%	3,90%	6,57%
ROE	4,54%	1,42%	7,69%	12,71%

Source: Calculation of the authors based on the data from www.bvb.ro

The first companies to be analysed were SNGN Romgaz SA and CN Transelectrica SA, an unsual pair considering the fact that Romgaz is one of the biggest producer and distributer of Gas Company from Romania and Transelectrica is one of the main operators and suppliers in the electricity sector. As observed from the graphics Romgaz registers steady good results at all indicators, except the current ratio which has extremely low values in 2013 and 2014 on contrary with the return indicators that have the highest values in that period, probably based also on an increase in the market price for gas. Transelectrica has the lowest values in 2011 and 2012 but these values constantly improve in the analyzed period, having satisfying results at all indicators in 2013 and 2014, but without excelling.

In spite of several problems at the level of management and involved in "conflicts" with the National Court of Auditors, Nuclearelectrica, an nuclear electricity producer registers good results in the liquidity and solvency indicators but falls short with the Return indicators. Both ROA and ROE are having extremely low values, way under the efficiency level.

Table 2 Financial Early warning Indicators for Nuclearelectrica and Electrica SA

3. SN NUCLEARELECTRICA SA					4. ELECTRICA SA				
Indicators	2011	2012	2013	2014	Indicators	2011	2012	2013	2014
WCR	3,157766	2,369606	6,543779525	3,873384814	WCR	1,070842	1,199997	2,836376124	23,65724027
QR	0,865227	0,666399	3,138974251	3,000818094	QR	1,031564	1,150893	1,264791237	12,68863514
CR	0,293743	0,402471	2,762024676	2,493983551	CR	0,28081	0,41851	0,447892	11,35640013
Sv	4,04344	4,016135	2,923755057	4,159303305	Sv	2,677365	2,809879	2,880991461	40,60303379
ROA	0,90%	0,33%	3,62%	1,39%	ROA	0,84%	4,20%	3,08%	6,79%
ROE	1,20%	0,43%	5,50%	1,83%	ROE	1,34%	6,53%	4,72%	6,96%

Source: Calculation of the authors based on the data from www.bvb.ro

The biggest electricity company from Romania: Electrica SA, recovering from a disappointing 2011 registers outstanding results having extremely healthy solvency and liquidity indicators, way over other companies in the field. On the other side the results are moderate when analysing the return indicators which are near the Romanian average.

Table 3 Financial Early warning Indicators for Transgaz and OMV Petrom

5. SNTGN TRANSGAZ SA MEDIAS					6. SC OMV PETROM SA				
Indicators	2011	2012	2013	2014	Indicators	2011	2012	2013	2014
WCR	N/A	N/A	2,375295719	5,028604698	WCR	1,614137	1,114351	1,346386798	1,311396298
QR	N/A	N/A	1,388462989	3,096705758	QR	1,163159	0,668175	0,690797097	0,77355272
CR	N/A	N/A	0,040878313	0,08276923	CR	0,028984	0,016646	0,00050454	0,007495369
Sv	4,112288	4,249558	4,433796191	3,379747182	Sv	2,373259	2,580164	3,055360137	2,560940624
ROA	9,74%	8,43%	8,42%	10,64%	ROA	10,43%	10,29%	12,44%	4,26%
ROE	12,87%	11,02%	10,87%	15,10%	ROE	18,02%	16,81%	18,50%	6,98%

Source: Calculation of the authors based on the data from www.bvb.ro

Transgaz an extremely solid company, which is one of the major players in the gas distribution market, its recording the biggest values from the sector for the return indicators and very healthy solvency and liquidity results.

Table 4 Financial Early warning Indicators for Conpet and Rompetrol

7. SC CONPET SA					8. ROMPETROL				
Indicators	2011	2012	2013	2014	Indicators	2011	2012	2013	2014
WCR	3,686213	6,54765	6,317401332	7,135573176	WCR	7,430673	6,923244	7,761898835	10,1971041
QR	0,448649	0,927451	6,018140045	6,85095649	QR	7,120951	6,556501	7,369979473	9,784420225
CR	0,01957	0,027868	5,15458865	6,206684545	CR	1,439558	1,576157	1,294888241	0,753722006
Sv	7,0367	10,71202	9,530387361	9,87305886	Sv	9,099537	8,802468	9,019005287	10,39604879
ROA	4,53%	4,98%	4,30%	6,39%	ROA	10,86%	13,84%	15,26%	4,96%
ROE	5,28%	5,49%	4,81%	7,11%	ROE	12,21%	15,61%	17,16%	5,49%

Source: Calculation of the authors based on the data from www.bvb.ro

On the other side the biggest two oil producers and distributors from Romania: OMV Petrom and Rompetrol seem to have a very tough year in 2014, after good financial results in 2011-2013. The return indicators are having the lowest values in the last 5 years. On the contrary Conpet gains excellent results both when analysing its solvency and liquidity and also on the return indicators for the years of 2013-2014.
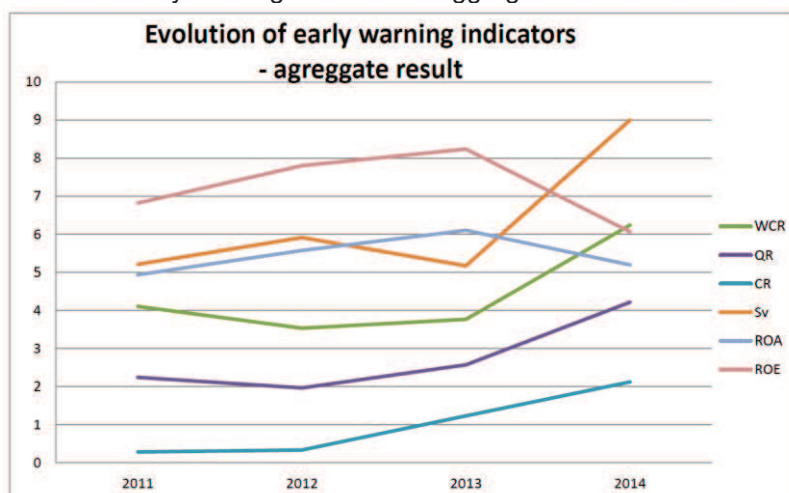
Table 5 Financial Early warning Indicators for Petrolexportimport and Oil Terminal

9. S.C. PETROLEXPORTIMPORT S.A.					10. S.C. OIL TERMINAL SA				
Indicators	2011	2012	2013	2014	Indicators	2011	2012	2013	2014
WCR	2,14974	2,050364	2,092596857	1,946396508	WCR	0,63201	0,563296	0,942457809	0,842667229
QR	2,095	2,00742	2,05030068	1,913181348	QR	0,589883	0,520869	0,892244562	0,813710604
CR	0,055955	0,003017	2,1982557	0,004068581	CR	0,040978	0,013978	0,118524357	0,035571292
Sv	1,233063	1,247705	1,252511165	1,209766694	Sv	11,51108	12,36807	7,734662512	8,049332905
ROA	0,34%	1,61%	0,48%	-1,77%	ROA	0,14%	0,13%	0,00%	0,12%
ROE	1,81%	8,11%	2,39%	-10,22%	ROE	0,16%	0,14%	0,00%	0,14%

Source: Calculation of the authors based on the data from www.bvb.ro

The last two companies Petrolexportimport SA and Oil Terminal SA are the most exposed companies at the international evolution on the oil market and their return indicators collapsed in 2013-2014, following the general evolution of oil prices.

Table 6 Financial Early warning Indicators – aggregate result

Source: Calculation of the authors based on the data from www.bvb.ro

When analysing the cumulated results for the financial early warning indicators can be observed, as a general evolution that a synergy is obtained between the liquidity and solvency indicators, on one hand and between ROA and ROE on the other hand, proving that an financial early warning detection system for the companies must include all three categories of indicators. Also we can consider that other indicators should be taken into consideration as well.

4. Conclusions

The research of financial early warning indicators for private or public companies is a study related directly to the issues of bankruptcy, insolvency or excessive debt of the company. In the last years, the early warning indicators supported by return indicators have become strategic tools for the financial managers of the companies, for company owners, investors, bankers or for other professionals.

Table 7 Financial Early warning Indicators – aggregate result
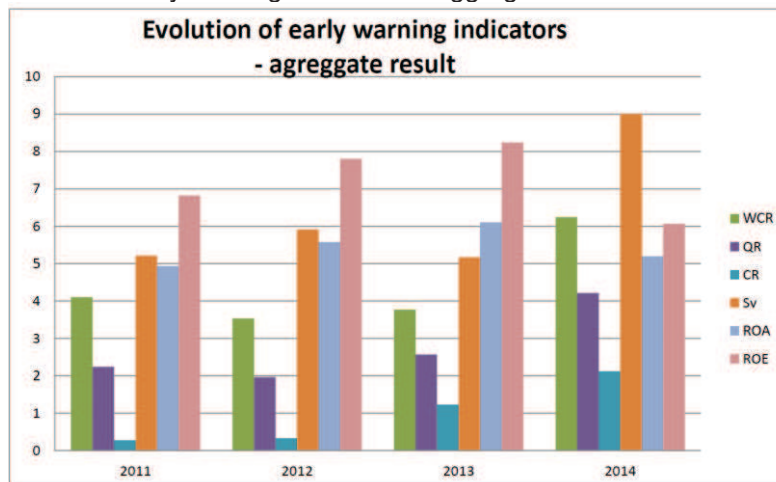
Source: Calculation of the authors based on the data from www.bvb.ro

In which concerns the analysed companies the aggregate results reveals us an interesting fact while the liquidity and solvency indicators improve steady in the analysed period the return indicators crash in 2014 especially based on the decreasing financial ratios from the oil production and distribution companies. Huge differences can be observed between the companies with a different type of activity, especially between gas and electricity companies and petroleum companies. On the other hand similar results can be obtained by companies from the same sector.

As a general conclusion of the paper we can consider that the six financial indicators proposed for establishing the financial early warning model can be considered relevant, but in order to be successful these indicators must be accompanied by several other types of indicators both financial, macro-economic,

sectorial and also non-financial qualitative or quantitative. This study should be continued on a larger scale and including other indicators in order to establish a real functioning model for early warning in case of private companies.

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