CONSIDERATIONS REGARDING THE EVOLUTION OF THE LIQUIDITY AND SOLVENCY INDICATORS OF THE MOST IMPORTANT ROMANIAN PRODUCTION COMPANIES IN THE PERIOD 2014-2017

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Abstract: *The production sector from Romania had to face a huge number of challenges from 1990 to 2017. Most of these challenges were witnessed by the previously owned state companies which had to reform in order to survive. This process was a very long and difficult one, since most of the previously state-owned companies had difficulties in adapting to the private environment. Thus, the number of these companies which are still active on the Romanian Stock Exchange and which constitute interest for the private investors was reduced significantly. Under these circumstances the goal of the current paper was to analyze the financial health of 10 most significant production companies registered on the Bucharest Stock Exchange (BVB) especially when considering the evolution of their liquidity and solvency indicators. The study considered for analysis the financial data presented in their balance sheets and profit and loss accounts which were reported on the Bucharest Stock Exchange website: www.bvb.ro or published in their annual reports. The study concentrated on a set of six liquidity and solvency indicators considered most representatives by both the investors, banks and the business environment. The notions of liquidity and solvency are two of the most important issues in financial analysis at the level of the companies both from theoretical and practical point of views. Both referring to the financial health of the companies these indicators have some considerable differences in calculation and interpretation, but are considered equally important. In order to have a healthy company the financial manager should make proper decisions to obtain, at least, satisfactory results on both set of indicators*

Keywords: *solvency; efficiency; liquidity; corporate finance.*

JEL Classification: *G32; G11; G17.*

1. Introduction

Solvency and liquidity at the level of companies were some of the first financial indicators to be researched and later implemented by the financial professionals. Kajananthan and Velnampy (2014) mentioned the research of Horrigan (1965) which claimed that the first solvency and liquidity indicators were calculated in the 19th century and that the development of financial ratio is a “unique product of the evolution of accounting procedures and practices”.
These indicators are considered to be some of the most important indicators which can be used to analyse the financial health of the company. Berk&De Marzo (2014) urged the importance of these indicators for both creditors and owners of companies. They considered that healthy companies should possess adequate liquidity and also be solvent. In their representative book Brealey et all (2013) are mentioning that

solvency is the main indicator for long term financial health of a company and it shows how the company can fulfil its long-term financial commitments.
Similar approaches were mentioned by other authors such as: Fenyves et all (2018), Karanovic and Karanovic (2016), Rozsa (2014) or Droj (2015). According to the definition published in www.investopedia.com a company can be considered solvent if it "owns more than it owes" and accomplishes two requirements: has a positive net worth and has a good financial management of the debt load (Stancu, 2006 and Droj, 2012).
Brealey et all, (2017), Stancu (2006), Droj (2012) and Pierre (2004) previously identified several indicators which can be used with excellent results in analysis of the solvency and liquidity rates. In the next chapter we will identify and define the main indicators which will be proposed for the case study.

2. Construction of the case study – identification of indicators

The first proposed solvency indicator is actually the Solvency Rate (RSv) which was already used to test the solvency for companies located in the Romania-Hungary cross-border area. This indicator it's showing the extent to which the value of total debts are covered by the value of total assets, and reflects the security enjoyed by creditors, as well as the creditworthiness of the company(Droj, 2012).

$$\text{Rsv}= \frac{Total\ assets}{Totaldebts} x100 \qquad (1)$$

Other indicator used in the same study by Droj (2012) is the g**lobal financial autonomy rate (RAFG**) – which shows how much of the company's assets are financed from their own resources. This indicator it is showing the weight of the shared capital in total financing sources.

$$RAFG = \frac{Equity}{Total\ liabilities} x100 \qquad (2)$$

The third indicator used in this paper is the interest coverage ratio which was proposed on www.investopedia.com. A rising debt-to-equity ratio implies higher *interest expenses*, and beyond a certain point it may affect a company's credit rating, making it more expensive to raise more debt (Investopedia, 2018).

$$\text{Interest coverage ratio} = \frac{\text{Operating income (or EBIT)}}{\text{Interest expense}} \qquad (3)$$

As mentioned on the web site this ratio measures the company's ability to cover the interest expense on its debt based on its EBIT. While solvency is a long term indicator, liquidity is indicating the short term financial health of the company. Based on the earlier study we used the General liquidity rate and the cash Ratio.

$$RL = \frac{Current\ assets}{Short\ term\ debts(Current\ Liabilities)} \qquad (4)$$

Immediate liquidity rate also known as the cash ration (RLI) reflects the capacity of the company to pay current debts only based on its current cash and bank accounts. The value of this rate provides little relevant information because of the unpredictability of its cash flow management; usually additional information is needed regarding its activity (Ross et. all, 2013).

$$RLR = \frac{Cash}{Short\ term\ debts(Current\ Liabilities)} \quad (5)$$

3. Case study - Financial analysis of the solvency and liquidity of the Romanian production companies between 2014-2017

In order to realize the case study and to test the efficiency of the proposed indicators we selected 10 key production companies from BVB stock exchange and we collected their financial information for a period of four years: 2014-2017.
The companies are: OMV Petrom SA, Nuclearelectrica SA, Romgaz SA, Electrica SA, Transgaz SA, IAR SA, Rompetrol SA, Aerostar SA and Artego SA. These companies are considered highly representative for their field of activity and most of them have a contribution in Bucharest Stock Exchange Index.
The first analysed company is SNGN Romgaz a natural gas producer and operator and the results at the level of this company have been outstanding with increasing values over the entire analysed period.

Table 1. Solvency and Liquidity test for SNGN Romgaz SA

1	S.N.G.N. ROMGAZ S.A.			
Indicators	2014	2015	2016	2017
RAFG	86,9406	87,66805	85,29854762	84,14158653
RLG	6,748876	6,795675	5,270556103	3,642591931
RLR	2,148769	1,659784	1,490877058	1,141068291
RLI	0,110136	0,131391	0,191363216	0,120295841
RSV	7,657321	8,109019	6,802049035	6,305801032
ROA	0,126211	0,108025	0,09032003	0,167612004
ROE	0,145169	0,123221	0,10588695	0,199202333

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

The second case study subject is the largest company which is registered at BVB: OMV Petrom which registered mixed results: from losses in 2015 to record profit in 2017. The liquidity and solvency indicators improved significantly in this period showing a strengthening financial health.

Table 2. Solvency and Liquidity test for OMV Petrom SA

2	SC OMV PETROM SA			
Indicators	2014	2015	2016	2017
RAFG	60,95185	61,35585	63,04984099	66,99468547
RLG	1,311396	1,600159	2,235870334	2,362052077
RLR	0,773553	1,126337	1,718701364	1,940942783
RLI	0,007495	0,194156	0,596804105	0,989054649
RSV	2,560941	2,587714	2,7063483	3,02981509
ROA	0,042552	-0,015421	0,022014697	0,058339285
ROE	0,069812	-0,025134	0,034916341	0,087080467

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

The next two companies which were subjected to test over their liquidity and solvency, are the two electrical power producers: Nuclearelectrica SA and Electrica SA. For both companies the years 2014 and 2017 were the best years in this analysis, showing weaker liquidity and solvency results in the years 2015 and 2016. Their results are similar and this is caused probably by the fact that they operate in the same economic environment.

Table 3. Solvency and Liquidity test for Nuclearelectrica SA and Electrica SA

	SN NUCLEARELECTRICA SA				ELECTRICA SA			
Indicators	2014	2015	2016	2017	2014	2015	2016	2017
RAFG	75,95751	78,34979	78,94835691	80,77734659	97,53713	97,4025218	97,8809939	97,39296
RLG	3,873385	4,762572	4,890428616	5,535690046	23,65724	32,5516	26,0927454	11,36378
RLR	3,000818	1,093697	1,045160193	1,744157291	12,68864	5,71049492	3,36752093	2,935464
RLI	2,493984	0,661465	0,642997633	1,375388097	11,35604	4,002061	2,40542639	1,421156
RSV	4,159303	4,631066	4,763478232	5,218264293	40,60303	38,4988796	47,1919368	38,35764
ROA	0,013897	0,015605	0,012190847	0,033069232	0,067928	0,0746451	0,06648619	0,064073
ROE	0,018296	0,019917	0,015441546	0,040938746	0,069644	0,0766357	0,06792554	0,065788

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

Another company which operates in the energy field is the owner of the Romanian gas distribution system: Transgaz SA which achieved amazingly steady and healthy liquidity and solvency results.
The aircraft production companies IAR SA and Aerostar SA were analysed in parallel, but surprisingly the results were not similar. In which concerns IAR SA the Brasov based company improved significantly all its liquidity and return ratios but underperformed in the solvency analysis. On the other hand Aerostar SA seems healthy on medium and long term but with warning signals in the short term since the short term liquidity rates show clear degradation.

Table 4. Solvency and Liquidity test for Transgaz SA

5	SNTGN TRANSGAZ SA MEDIAS			
Indicators	2014	2015	2016	2017
RAFG	70,41199	72,08493	72,2121335	71,31940317
RLG	60,75452	6,560858	9,175400873	9,897463482
RLR	0,188544	0,631766	5,602666436	7,497889536
RLI	0,082769	0,047171	0,880889444	2,860043932
RSV	3,379747	3,582295	3,598692976	3,486677791
ROA	0,106353	0,098705	0,111876348	0,111557572
ROE	0,151043	0,136928	0,154927354	0,156419665

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

Table 5. Solvency and Liquidity test for IAR SA and AEROSTAR SA

	IAR SA				AEROSTAR SA			
Indicators	2014	2015	2016	2017	2014	2015	2016	2017
RAFG	60,95185	53,1492	48,64254994	38,55803768	46,80231	50,4527096	52,0341022	58,47225
RLG	1,311396	4,640308	4,993437975	12,62585737	3,071836	4,10969976	4,41488494	6,560265
RLR	0,773553	3,38048	3,534250322	7,262346191	1,522142	1,6249572	1,37607689	1,12573
RLI	0,007495	2,757525	2,472198152	2,948396662	0,734904	0,38294399	0,69794713	0,156923
RSV	2,560941	2,134435	1,947137171	1,627552185	1,879781	2,01827384	2,08481452	2,408028
ROA	0,042552	0,060048	0,053267045	0,072035493	0,064709	0,14527945	0,1373696	0,122899
ROE	0,069812	0,112981	0,109507098	0,186823544	0,138261	0,28795173	0,26399918	0,210184

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

Parallel analysis have been realised for two production giants: Teraplast SA and ARTEGO SA. They do not operate in the same field of activity and they do not cover the same market but both companies witnessed a moderate improvement of the indicators in the analysed period with up and downs from one year to another.

Table 6. Solvency and Liquidity test for Teraplast SA and ARTEGO SA

	TERAPLAST				ARTEGO SA			
Indicators	2014	2015	2016	2017	2014	2015	2016	2017
RAFG	57,58833	61,79135	78,7344024	50,79058993	59,91267	50,2917848	60,7851947	58,60171
RLG	1,191064	1,487871	3,121284443	1,618617441	1,590978	1,31972483	1,31718754	1,517656
RLR	0,733638	1,03883	1,721535837	0,86420133	0,736525	0,72781735	0,81737501	0,647106
RLI	0,046154	0,143667	0,323673291	0,053525313	0,094301	0,08318099	0,09877639	0,117301
RSV	2,357842	2,617208	4,702430746	2,032131656	2,494554	2,0117399	2,11830239	2,415558
ROA	0,043916	0,115966	0,177318859	0,037606726	0,033405	0,07408287	0,03868107	0,04674
ROE	0,076258	0,187673	0,225211411	0,074042705	0,055756	0,14730611	0,06363567	0,079759

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

The last company which was analysed is a petroleum production giant: Rompetrol SA. Their results were influenced by the fact that between 2015-2016 they registered net losses, similar to the other petroleum giant: OMV Petrom SA. An interesting element to be note dis the drastically erodation of the cash ratio which decreased from 0,73 to a disturbing 0,34.

Table 7. Solvency and Liquidity test for Rompetrol SA

8	ROMPETROL			
Indicators	2014	2015	2016	2017
RAFG	90,38096	0,077692	91,36817194	91,21070914
RLG	10,1971	11,05231	9,243910209	10,08632623
RLR	9,78442	10,53869	8,966227092	9,673133388
RLI	0,753722	0,932405	0,73545999	0,345370853
RSV	10,39605	13,44971	11,5850315	11,37748217
ROA	0,049621	-0,217392	-0,04420304	0,043373363
ROE	0,054902	-279,8126	-0,04837904	0,047552928

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

4. Conclusions

After analysing the results of the study separately we decided to create an aggregate set of indicators combining the results at the level of all these companies. The aggregated results table shows a healthy Romanian production sector, especially when comparing solvency and liquidity indicators. Also shows that the negative return results of the year 2015 for the main petroleum companies influenced directly the results for the entire sector. The tendency in the sector is to have a slight increase of return indicators versus a slight decrease at the level of liquidity and solvency indicators.

Table 8. Aggregate Indicators for the most representative production companies registered at BVB

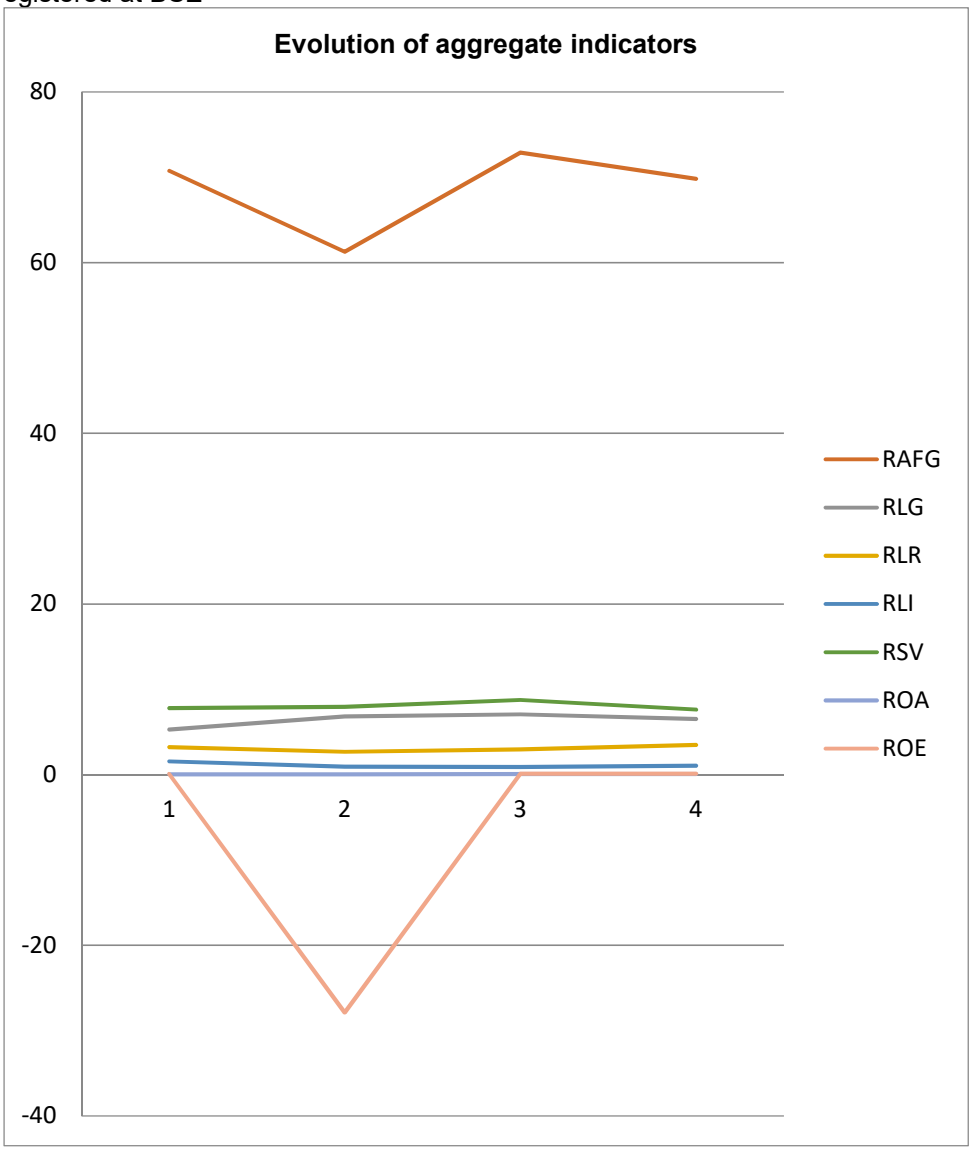
Indicators	2014	2015	2016	2017
RAFG	70,7435199	61,26239	72,89542942	69,82593
RLG	5,29532759	6,831992	7,075570646	6,52103
RLR	3,21620532	2,690109	2,964039113	3,483204
RLI	1,56042316	0,92888	0,904553574	1,038746
RSV	7,80495111	7,964034	8,750022171	7,625895
ROA	0,05911433	0,045954	0,066532164	0,075731
ROE	0,08489531	-27,87451	0,099307205	0,114779

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

On the other hand when projecting the graphic evolution at the level of the indicators other facts are highlighted:"

- Direct relation between the evolution of ROE and RAFG which seem to be constant even if they are situated in the opposite sections of the graphic
- Strong correlation between ROA, solvency and the liquidity rates which have the similar evolution over the four years'

Table 9. Aggregate Indicators for the most representative production companies registered at BSE



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

An explanation for these results is that the Romanian main production companies are strongly inter-related to each other and are influenced directly by the internal and external economic environment. On the other hand, the similarities of results between these companies show that this study is representative for all big public or privately-owned production companies located in Romania and can be extended to other fields as well. An interesting study can be realized for comparing the results for the production companies with companies from different fields of activities or with a study realized on smaller and medium companies.

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