

ANALYSIS OF THE FINANCIAL PERFORMANCE ASSESSMENT IN THE CONTEXT OF BANKRUPTCY RISK MANAGEMENT

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Abstract: The economic environment is facing a series of transformations that are spreading rapidly and determine the appearance and manifestation of the risks, which affect the activity of the companies. Regardless of the type of activity carried out by a company, the decisions it makes regarding development and modernization, it is necessary to identify, evaluate and avoid or reduce the risks. Insufficient knowledge of the risk, as well as minimizing the importance with which it is managed, can negatively affect the performance obtained, eventually leading to the bankruptcy. In this context, determining the risk of the bankruptcy, using various mathematical models, in close correlation with the financial performance obtained, becomes particularly important. The paper presents how to evaluate the financial performance based on financial indicators and how to calculate the risk of the bankruptcy. The risk of bankruptcy is calculated using the Altman model, adapted to the field of the activity, for two companies (OMV Petrom and Rompetrol Rafinare), which operate in the same field of activity, to explain the success or failure of the activity carried out.

Keywords: bankruptcy risk, financial performance, economic rate of return, solvency rate.

1 INTRODUCTION

The transformations that are taking place in the current context are making their mark more and more on the way in which the economic entities carry out their activity. The debates held at the level of these entities aim at their responsibility and involvement in the development process, as well as the interactions with a complex and competitive business environment, in a globalized economy, which impose a series of changes in their behavior.

In such a context, in which the competitiveness is increasingly important, any economic entity aims at at least two objectives, the profitability and customer satisfaction [3]. In order to achieve these objectives, it is necessary collecting information, which allows establishing the financial position held by each entity.

Financial performance management involves the calculation and implementation of the financial indicators adapted to the needs of each economic entity, in order to obtain a real picture of the activity, which will be the basis for

the decisions to improve the existing situation and maximize the performance [7]. The evaluation of the financial performances becomes the goal of each entity and at the same time the management tool for achieving of the superior results. The transition to the concrete action of calculating the financial performance indicators requires, first, the positioning of the selected field in the economic context, and then the presentation of the general and particular aspects of the entities subject to the analysis.

The risks that appear at the level of the economic entities require the permanent knowledge of the financial statements, but also of the vulnerable areas/with development potential. In this way, managers can identify and manage in time these risks that would prevent achieving of the set objectives [5].

Thus, the forecasting of the bankruptcy risk appears as a necessity at the level of the entity, but also at the level of the institutions related to it, respectively, investors, suppliers, customers, etc.

2 COMPARATIVE FINANCIAL PERFORMANCE ASSESSMENT FOR TWO ECONOMIC COMPANIES

Multiple specialized studies have attributed different meanings to the term performance: the expected result of the activity is a positive one, productivity, efficiency, effectiveness, growth, success, economy, etc. [4].

Referring to the concept of the financial performance and the ways in which it can be measured, without reaching a common consensus, several authors have reached a common point, stating that this concept is a multidimensional one, for the evaluation of which a system of indicators is used [6], [8], and [12].

Other authors [11] state that the performance of an economic entity combines financial performance, which aims at financial

objectives, with the operational one, which refers to the purpose pursued.

Salameh et al., (2012), argue for the existence of a positive correlation between the size of the economic entity, liquidity and performance [9].

If we refer strictly to the financial performance, based on the information contained in the profit and loss account of the economic entities, it can be defined in terms of profitability. In this sense, [10] presents the calculation method of the main performance indicators: financing rates, liquidity and solvency rates, degree of indebtedness, rates of return.

Next, the comparative financial performance for two companies in the same field of activity (OMV Petrom and Rompetrol Rafinare) is analyzed based on financial indicators (financing rates, liquidity and solvency rates, degree of indebtedness, rates of return), over a period of five years (2015-2019). The data were extracted from the financial statements of the two companies [13], [14].

2.1 *Financing rates for OMV Petrom and Rompetrol Rafinare*

To finance its own activity, the economic entity can use two types of sources: own and borrowed. In order not to endanger the activity carried out, certain proportions must be observed between these two types of financial sources, thus avoiding the taking of loans in an uncontrolled way, which can have repercussions on the solvency. In this sense, it is very important that, once the financing sources have been identified, they should be combined in the best possible way, in order to reach the best possible of the return-risk ratio. These different proportions to which an economic entity uses to finance its activity, from its own and/ or borrowed sources, form its financial structure. Table 1 and Table 2 show the financing rates of the two companies.

Table 1. The financing rates at OMV Petrom

| Indicators (%) | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|-------|-------|-------|-------|-------|
| Stable financing rate | 100,1 | 105 | 107,6 | 110,3 | 115,8 |
| Self-financing rate of fixed assets | 68,74 | 73,01 | 82,64 | 90,37 | 93,15 |
| The rate of foreign financing of fixed assets | 31,39 | 32 | 24,99 | 19,94 | 22,68 |

The data presented in Table 1 and Table 2 show that OMV Petrom can fully finance its stable assets on the basis of the permanent capital, only in proportion of 69% ÷ 93% on equity and in proportion of 19% ÷ 32% on debts on long term.

Table 2. The financing rates at Rompetrol Rafinare

| Indicators (%) | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|-------|-------|-------|-------|-------|
| Stable financing rate | 36,11 | 38,72 | 54,07 | 59,53 | 56,69 |
| Self-financing rate of fixed assets | 25,21 | 26,88 | 47,06 | 43,07 | 37,21 |
| The rate of foreign financing of fixed assets | 10,89 | 11,83 | 7,01 | 16,45 | 19,47 |

In the case of Rompetrol Rafinare, the values obtained show that stable sources cover stable assets in the proportion of 36% ÷ 60%, only between 25% ÷ 47% on account of equity and in proportion of 7% ÷ 19% on account of term debts long.

2.2 Liquidity and solvency ratios at OMV Petrom and Rompetrol Refining

Liquidity represents the capacity of the economic entity to transform the current assets into cash, in order to respect the short-term obligations.

Solvency is the ability of the economic entity to pay long-term obligations from its own resources. Table 3 and Table 4 show the liquidity

and solvency rates for the two companies analyzed

Table 3. Liquidity and solvency ratios at OMV Petrom

| Indicators (%) | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------|-------|-------|-------|-------|-------|
| Overall liquidity rate | 98,67 | 143 | 149,6 | 158,1 | 192,8 |
| Immediate liquidity rate | 62,82 | 103,8 | 118,2 | 129,6 | 159,9 |
| General solvency ratio | 258,8 | 269,3 | 304,7 | 338,7 | 330,4 |
| Equity solvency rate | 68,64 | 69,52 | 76,78 | 81,92 | 80,41 |

In the case of OMV Petrom, the values recorded for the general liquidity rate show that it can pay its short-term payment obligations starting with 2016 (values > 100%).

The immediate liquidity rate registers values that show that the current assets with the highest degree of liquidity have the capacity to finance the short-term debts, starting with 2016 (values > 65%).

The general solvency ratio (values > 166%) shows that the company covers the total debts on the total assets, which demonstrates a good situation of the company.

The patrimonial solvency rate has values > 50%, in the whole analyzed period, which reflects a normal situation, the values being on an ascending trend, except for 2019, the company proving financial autonomy.

The values recorded for the two solvency ratios show a good long-term financial balance.

Table 4. Liquidity and solvency ratios at Rompetrol Rafinare

| Indicators (%) | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------|-------|-------|-------|-------|-------|
| Overall liquidity rate | 33 | 38,34 | 50,95 | 57,20 | 53,47 |
| Immediate liquidity rate | 22,50 | 21,70 | 31,18 | 34,03 | 36,76 |
| General solvency ratio | 123,6 | 124,2 | 146,8 | 142,8 | 133 |
| Equity solvency rate | 69,82 | 69,43 | 87,03 | 72,35 | 65,64 |

In the case of Rompetrol Rafinare, the general liquidity rate, even if it is on an upward trend, except for 2019, it has values below 100%, which demonstrates the lack of the short-term payment capacity, equivalent to the decapitalization of the company.

The immediate liquidity rate is below 65%, which means that current assets with the highest liquidity cannot finance the short-term debt.

The general solvency ratio (values <166%), shows that the company cannot cover the total debts on the total assets, while the patrimony solvency rate (financial autonomy) has values higher than 50%, during the entire analyzed period, which reflects financial autonomy, the highest value being registered in 2017, being superior to the one registered by OMV Petrom.

In the case of both companies, the equity covers the long-term debts.

2.3 Debt rates at OMV Petrom and Rompetrol Refining

In order to finance its activity, on the short and long term, an economic entity uses bank loans, which does not necessarily mean an indication of the financial difficulties. The analysis of the degree of indebtedness is an internal management problem, which aims at the efficient use of credits, but also at ensuring the favorable conditions for the repayment of the related rates and interests, at the due term. The analysis of the degree of indebtedness follows the state of the financial independence of the economic entity from third parties.

Table 5 and Table 6 show the indebtedness ratios for the two companies.

From the analysis of the global indebtedness rate, with values below the threshold of 50%, for the entire analyzed period, it can be deduced that OMV Petrom has financial autonomy, having the possibility to borrow.

Table 5. Indebtedness rates at OMV Petrom

| Indicators (%) | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------|-------|-------|-------|-------|-------|
| Global indebtedness rate | 38,64 | 37,13 | 32,82 | 29,52 | 30,26 |
| total indebtedness rate | 62,98 | 59,08 | 48,85 | 41,89 | 43,39 |
| Term indebtedness rate | 31,35 | 30,47 | 23,21 | 18,07 | 19,58 |

The total indebtedness rate (values below 200%) shows that OMV Petrom can cover all its debts on its own capital, while the term indebtedness rate has values below 50%, which means that the long-term debts can be covered from the own capital, thus resulting in the financial independence of the company.

Table 6. Indebtedness rates at Rompetrol Rafinare

| Indicators (%) | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------|-------|-------|-------|-------|-------|
| Global indebtedness rate | 80,89 | 80,53 | 68,13 | 70,01 | 75,15 |
| total indebtedness rate | 423,3 | 413,7 | 213,8 | 233,5 | 302,4 |
| Term indebtedness rate | 30,17 | 30,56 | 12,96 | 27,64 | 34,35 |

In the case of Rompetrol Rafinare, where the global indebtedness rate is above the threshold of 50% throughout the analyzed period, it reveals a reduced financial autonomy. Also, the total indebtedness rate exceeds 200%, which means an insolvency risk, an inadequate financial structure that can lead to cessation of payments.

Rompetrol Rafinare has a term indebtedness rate of less than 50% for the entire period, which shows that on the whole, the company proves financial independence.

2.4 Profitability rates at OMV Petrom and Rompetrol Rafinare

The year 2020 is for the transport, the year in which the fuel demand collapsed due to the Covid-19 pandemic, with effects on the global demand, which has dropped dramatically. As a result, the price of the crude oil has fallen sharply, and the Brent range, which is considered relevant to the European market, has reached its lowest level in 18 years, at the end of March 2020.

Throughout this period, most oil producers (including Russia and Saudi Arabia) have sold crude oil at a price well below the break-even point (\$ 40 / barrel), which leads us to think that the market is finally come back.

An indicator with a decisive role in establishing the financial diagnosis of an economic entity is profitability. This indicator, viewed in a broad sense, shows the dependence of the economic entity on the relations it has with the external environment and on the capacity to adapt to the market variations. On the other hand, viewed in a narrow sense, profitability refers to the way in which the economic entity manages to obtain revenues that exceed the costs.

For an internal diagnosis, but also for the external users of information, the knowledge of the ability to generate profit is not quite representative. Therefore, the comparisons between the indicators that give the result obtained (gross result, net result, operating result) and the indicators that reflect the effort made (equity, turnover, costs), lead to the determination of the profitability rates, which allow obtaining information for a deeper analysis of the existing situation at the level of the economic entity.

Knowing the rates of return helps to:

- stimulating the rational use of the resources;
- orientation towards those products / services that offer the greatest advantages;

- establishing the way of the market segmentation and differentiation of the commercial strategies;
- stimulating the interest of the economic entity in differentiating the products, emphasizing their quality.

Table 7 and Table 8 show the profitability rates for the two companies.

Table 7. Profitability rates at OMV Petrom

| Indicators (%) | 2015 | 2016 | 2017 | 2018 | 2019 |
|---------------------------|-------|------|-------|-------|-------|
| Net margin rate | -3,48 | 5,59 | 12,81 | 18,11 | 14,26 |
| Net operating margin rate | -3,28 | 9,08 | 16,83 | 23,15 | 16,66 |
| Economic rate of return | -1,54 | 2,19 | 6,07 | 9,48 | 7,84 |
| Financial rate of return | -3,84 | 1,91 | 6,66 | 10,08 | 8,79 |

For OMV Petrom, the net margin rate, which shows the entity's ability to make profit, the situation is as follows: except for 2015, when this rate is negative, due to the loss, it is on an upward trend in the period 2016 ÷ 2018, due to the increase in net profit, with a small decrease in 2019.

The net operating margin rate follows the same trend as the net margin rate, having higher values in the last three years, as a result of recording a higher operating result than the net profit.

Economic profitability is used by financial analysts to determine the efficiency with which the company's activity is managed, estimating its ability to make profit.

In the first two years, for OMV Petrom, when the economic return is below the interest rate, the return obtained from the exploitation of the assets does not cover the cost of debts, in which case the increase of the indebtedness (leverage) leads to the reduction of the financial rate below the rate of the economic return. During the last three years of the analysis, the economic profitability is above the interest rate, in which

case the attraction of the additional resources is rational because the economic profitability covers the cost of debt, the increase of indebtedness generating the increase of the financial profitability rate above the economic profitability rate.

Table 8. Profitability rates at Rompetrol Rafinare

| Indicators (%) | 2015 | 2016 | 2017 | 2018 | 2019 |
|---------------------------|------|------|-------|-------|--------|
| Net margin rate | 0,86 | 0,80 | 3,74 | -1,63 | -2,39 |
| Net operating margin rate | 4,12 | 3,14 | 1,99 | 0,78 | 0,44 |
| Economic rate of return | 1,28 | 1,03 | 5,17 | -2,95 | -4,45 |
| Financial rate of return | 6,67 | 5,28 | 16,22 | -9,84 | -17,92 |

In the case of Rompetrol Rafinare, the situation is as follows: in 2016 the net margin rate decreases compared to 2015, followed by an increase in 2017, as a result of a substantial increase in net profit. In the last two years, this rate has negative values, due to the growing losses recorded in these two years. The rate of net operating margin is on a downward trend over the entire period, as a result of the decrease in operating income from one year to another.

The economic profitability rate registers the highest value in 2017, registering negative values in the last two years, due to the loss of the company in those years.

In order for the economic entity to use its own resources efficiently, the rate of financial return, which give the return on equity, must be higher than 5%.

In the case of Rompetrol Rafinare, in the first three years of the analysis, the company registers values higher than 5% of the financial profitability rate, and in the last two years, negative values, due to the loss registered in the respective years.

3 RISK OF BANKRUPTCY

3.1 The Altman Bankruptcy Prediction Model

Following the assessment and evaluation of the financial health of the economic entity, based on the financial indicators, it is necessary to assess the risk of bankruptcy. The aim of this paper was to determine the risk of bankruptcy based on the mathematical model Altman for the two companies analyzed.

The Z-score function, proposed by Altman, is of the form:

$$Z(r_1, r_2... r_n) = \alpha_0 + \alpha_1 \times r_1 + \alpha_2 \times r_2 + \dots + \alpha_n \times r_n$$

where:

r_1, r_2, \dots, r_n = rates taken into account for the elaboration of the model;

$\alpha_1, \alpha_2, \dots, \alpha_n$ = coefficients considered for financial rates;

α_0 = free term.

The Z score obtained by each analyzed company allows the classification in one of the two categories, bankrupt or non-bankrupt, estimating the probability of their bankruptcy.

The Altman model, proposed in 1968, is [1]:

$$Z = 1,2 \times r_1 + 1,4 \times r_2 + 3,3 \times r_3 + 0,6 \times r_4 + 1,0 \times r_5,$$

where:

$r_i, i = 1, \dots, 5$ are defined as follows:

r_1 = Current assets/Total assets (measures company flexibility and efficient use of working capital);

r_2 = Reinvested profit/Total assets (measures the company's own financing capacity);

r_3 = Operating income/Total assets (measures the return on assets);

r_4 = Market capitalization/Long-term debt (the extent to which the long-term debt is used for permanent financing);

r_5 = Turnover/Total Assets (measures the turnover rate of assets).

Depending on the score obtained, the vulnerability to the risk of bankruptcy is assessed as follows:

$Z > 2.99$ → the company is solvent and the risk of bankruptcy does not exist;

$1.8 < Z < 2.99$ → the company is in difficulty and the risk of bankruptcy is medium;

$Z < 1.8$ → the company is insolvent and the risk of bankruptcy is maximum.

The limitation of the applicability of this method comes from the fact that the underlying research was carried out during the years 1946-1965, on the American manufacturing industry, and the conclusions can be extrapolated only by an adaptation of the calculation model according to the specifics of the activity sector. . Later, Altman developed a model that can also be applied to private companies, and which has the following score function [2]:

$$Z' = 0.717x_{r_1} + 0.847x_{r_2} + 3.107x_{r_3} + 0.420x_{r_4} + 0.998x_{r_5}$$

3.2 Determining the score function in the case of the two analyzed companies

The Z-score function obtained, using the Altman model, adapted for private companies, has been calculated based on the data from the annual financial statements of the two analyzed companies and are presented in Table 9 and Table 10.

Based on the values obtained for the Z score function, it can be seen that OMV Petrom has a good financial situation, without the risk of bankruptcy.

In the case of Rompetrol Rafinare, the values of the Z score function are better in the first three years and weaker in the last two years, due to the losses registered during this period.

Table 9 Z-OMV Petrom score function - Altman model

| The name of rates | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|--------|-------|-------|-------|-------|
| r_1 =Current assets/Total assets | 0,105 | 0,133 | 0,187 | 0,217 | 0,247 |
| r_2 = Reinvested profit/Total assets | - | 0,022 | 0,058 | 0,090 | 0,077 |
| r_3 = Operating income/Total assets | -0,013 | 0,036 | 0,080 | 0,112 | 0,099 |
| r_4 = Market capitalization/Long-term debt | 1,433 | 1,297 | 1,944 | 2,532 | 3,214 |
| r_5 = Turnover/Total Assets | 0,341 | 0,304 | 0,360 | 0,413 | 0,427 |
| Z score function | 3,4 | 3,05 | 3,6 | 4,1 | 4,3 |

Table 10 Z-Rompetrol Rafinare score function - Altman model

| The name of rates | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|-------|-------|-------|-------|-------|
| r_1 =Current assets/Total assets | 0,242 | 0,276 | 0,323 | 0,304 | 0,332 |
| r_2 = Reinvested profit/Total assets | 0,013 | 0,010 | 0,052 | - | - |
| r_3 = Operating income/Total assets | 0,061 | 0,040 | 0,028 | 0,014 | 0,008 |
| r_4 = Market capitalization/Long-term debt | 3,975 | 4,304 | 6,108 | 2,358 | 2,141 |
| r_5 = Turnover/Total Assets | 1,484 | 1,287 | 1,383 | 1,809 | 1,862 |
| Z score function | 3,5 | 3,4 | 4,3 | 3,0 | 3,0 |

4 CONCLUSIONS

The analysis of the financial performance was performed based on the rates of return, liquidity, solvency, and indebtedness, based on which the following conclusions were drawn:

- regarding OMV Petrom, one of the main producers of the electricity in Romania, but also the largest producer of oil and gas, it results that this company can pay its short-term payment obligations,

- registering an immediate liquidity rate > 65 %;
- OMV Petrom fully covers its stable assets on account of the stable sources, for the entire analysed period, the surplus of the permanent sources being used to finance the current assets;
- -solvency for OMV Petrom, suggests a good situation, which demonstrates ensuring the long-term financial balance;
- the financial autonomy of the company increases from year to year, having the possibility to borrow, covering all debts on account of equity.
- economic profitability obtained in the first two years of analysis, demonstrates the inability of the company to cover the cost of debts, which makes that an increase in indebtedness reducing the rate of the financial profitability, below the level of the economic profitability, a completely different situation in the following three years, when the rate of the financial profitability obtains values superior to the economic profitability;
- in the case of Rompetrol, it presents insolvency risk, which can lead to termination of payments, however the company has financial autonomy (asset solvency rate > 50% throughout the analysis period), registering an even higher value in 2017, compared to OMV Petrom;
- the company has an immediate liquidity rate < 65%, and the ability to finance its stable assets from stable resources is partial;
- the rate of the economic profitability registers the highest value in 2017, following that on the background of the registered losses, in the period 2018-2019, to have negative values;
- the rate of the financial profitability has in the first three years values higher

than OMV Petrom, the values being > 5%, these becoming negative in the last two years.

Regarding the analysis of the bankruptcy risk, in the case of both companies, during the entire analysed period, a practically non-existent probability of bankruptcy is found, with variations from one year to another, in accordance with the financial performances obtained.

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