

BANKRUPTCY RISK ANALYSIS. CASE STUDY

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Abstract:

For any manager, the analysis of the company's ability to be solvent and to overcome the risk of bankruptcy must occupy a central place. The appreciation of company's capacity to settle its obligations in time is appreciated nuanced depending on the concrete economic-financial conditions in which it carries out its activity.

If the state of insolvency is already declared to the company, this analysis is decisive in the decision to try to reorganize the business.

Key words: *bankruptcy, insolvency, risk*

JEL classification: K22

Company X SRL, based in Timisoara, was taken for analysis, which due to financial difficulties requested in 2021 the opening of the insolvency proceedings. The analysis was done using the data from balance sheets prepared on 31.12.2018, 31.12.2019, 31.12.2020, documents obtained from the debtor.

Analysis of the profit and loss account

“The profit and loss account provides information on the net turnover, income and expenses for the year, grouped by nature, and the result for the year (profit or loss).”¹

The profit and loss account is an accounting document that provides a true picture of financial performance, explicitly summarizing the income and expenses of a management period and on this basis presents the way of forming the economic results. The overview of the profit and loss account for the last 3 years is shown in table 1.

„Profit is the basic indicator of the concept of economic and financial efficiency, which is the reason for being a business in a market economy. The presence of profit demonstrates that companies fully cover their expenses from their own income and obtain a surplus value in monetary terms”.²

The analysis of the turnover is highlighted through the prism of categories of incomes that it includes. Turnover is the indicator that allows the characterization of the size of the company, as well as its economic- financial analysis. In the case of the company X, the turnover is made mainly from revenues from the sale of goods.

¹ Sabău, C., Trif, V., Artene E., Nagy, C.(2011) „ Bazele contabilității", Editura Eurostampa, Timișoara, p. 336 (Sabău, C., Trif, V., Artene E., Nagy, C. (2011),” Basics of accounting”, Eurostampa Publishing House, Timisoara, pp. 336)

² Crăciun Sabău, Cristina Mihaela Nagy (2021). Analysis Of A Company's Financial Balance. QUAESTUS, NO. 19/ June 2021, Editorial Board Honorary Editors , p. 31

Revenues from the sale of goods, represented by ceramic products, glassware and maintenance products, in 2020 amounted to a total value of 3.525.835 lei.

Table 1. The overview of the profit and loss account

Specification	31.12.2018	31.12.2019	31.12.2020
Revenue from operating subsidies related to turnover	0	0	0
Production sold	0	0	0
Income from sale of goods	2.340.265	3.462.123	3.525.835
Turnover	2.340.265	3.462.123	3.525.835
Income from the production of fixed assets	0	0	0
Other operating revenues	75.960	221.822	22
Stock change	0	0	0
OPERATING INCOME	2.416.225	3.683.945	3.525.858
Expenditure on goods	1.989.436	2.900.267	7.045.869
Other material expenses and expenses with raw materials	5.811	6.977	10.366
External expenditure(energy and water)	3.315	3.383	3.091
Expenses with taxes, fees and similar payments	82	3.950	1.043.078
Staff costs	71.878	80.988	108.429
Depreciation and provisioning expenses	3.590	24.153	1.100
Other operating expenses	94.498	93.250	65.938
OPERATING EXPENSES	2.168.610	3.112.968	8.277.871
OPERATING RESULT profit(+) loss(-)	247.615	570.977	-4.752.013
Financial income	45.314	22.532	13.622
Financial expenses	42.285	17.322	17.391
REZULTATUL FINANCIAR - profit (+) / pierdere (-)	3.029	5.210	-3.769
<i>Current result for the year</i>	<i>250.644</i>	<i>576.187</i>	<i>-4.755.782</i>
TOTAL INCOME	2.461.539	3.706.477	3.539.480
TOTAL EXPENSES	2.210.895	3.130.290	8.295.262
GROSS RESULT FOR THE YEAR	250.644	576.187	-4.755.782
Income tax/other taxes	42.096	96.897	0
NET RESULT OF THE YEAR	208.548	479.290	-4.755.782

Table 2. The turnover structure

Specification	31.12.2018	31.12.2019	31.12.2020
Fiscal value- turnover	2.340.265	3.462.123	3.525.835
Production sold	0	0	0
<i>Share in turnover</i>	<i>0,00%</i>	<i>0,00%</i>	<i>0,00%</i>
Income from sale of goods	2.340.265	3.462.123	3.525.835
Share in turnover	100,00%	100,00%	100,00%
Income from operating subsidies	0	0	0
<i>Share in turnover</i>	<i>0,00%</i>	<i>0,00%</i>	<i>0,00%</i>

The purpose of the analysis of the turnover is to identify the types of incomes from the basic activity of the company and the evolution of these incomes in time. In the case of X company turnover is mainly generated from revenues from the sale of goods. The turnover structure is presented in the table no. 2.

It is observed, in the table above, the ascending evolution registered by the turnover during the analysed period. This evolution takes place against the background of the year-on-year increase in revenues obtained.

The operating activity is of major importance in the analysis based on the profit and loss account regardless of the specifics of the activity. In the following, the operating activity and the financial activity of the debtor for the period 2018-2020 will be monitored through the prism of the profit and loss account.

In this case, it has an oscillating evolution during the analyzed period, so that in 2018 it registers a profit of 208.548 lei, following that in 2019 the situation will be favourable, the activity in exploitation registering a positive result of 479,290 lei and in 2020, the operating activity ends with a negative operating result of -4.755.782 lei.

The operating income within the debtor company follows an oscillating evolution during the period, registering the highest value in 2019 in the amount of 3.683.945 lei. Structurally, operating income is represented by: income from the sale of goods and other operating income. Operating expenses represent the total expenses generated by the activity of the debtor company and it has an increasing evolution throughout the analyzed period. The largest share in the total operating expenses is held by other material expenses and expenses with raw materials. On addition to these expenses there are other operating expenses (royalties, management location, tents, insurance, transportation, postage, telecommunication, expenses with banking an similar service), depreciation and amortization expenses, personnel expenses, taxes, fees, charges, energy and water expenses. The operating result follows an oscillating evolution, and in the last year subject to analysis- 2020, the operating income is preceded by the operating expenses, so that the operating result records a loss of -4.755.782 lei.

Financial income has a small share in the total income of the company and structurally consists of income from exchange rate differences, interest income and other financial income. Financial expenses are represented by exchange rate differences and interest expenses. The financial result registered by the company in the analyzed period is represented by losses, the financial incomes being preceded by the financial expenses, in the last year a los in the amount of -3.769 lei was registered.

Regarding the net result of the year, it follows an oscillating evolution, thus in 2018 and 2019 a profit was obtained, following that in 2020 it will record a loss.

As a conclusion, the activity of the debtor was profitable in 2018 and in 2019, and in 2020, as a result of the increase in expenses, the activity became unprofitable, registering a high loss.

Analysis of the patrimony

In preparing this analysis, we take into account the economic and financial situation of the company, starting from the point that they reflect a correct, complete and faithful image of the economic activity carried out by the company. In order to give a clear and complete picture of the evolution of the company in the last three years, an analysis of the situation of the debtor's patrimony is performed.

Table 3. Analysis of the patrimony

Nr. crt.	Name of goods	Net value without depreciation in lei		
		31.12.2018	31.12.2019	31.12.2020
1	Intangible assets	152,00	39,00	1.500,00
2	Tangible fixed assets	16.071,00	15.627,00	14.466,00
3	Financial assets	8.483,00	8.483,00	9.333,00
4	Inventories/stocks	5.397.119,00	5.160.891,00	934.126,00
Total value of goods		5.421.825,00	5.185.040,00	959.425,00

Financial situation for the period 2018-2020 in lei:

ACTIV	31.12.2018	31.12.2019	31.12.2020
Intangible assets	152	39	1.500
Tangible fixed assets	16.071	15.627	14.466
Financial assets	8.483	8.483	9.333
<i>FIXED ASSETS TOTAL</i>	<i>24.706</i>	<i>24.149</i>	<i>25.299</i>
Inventories	5.397.119	5.160.891	934.126
Claims	504.659	232.236	281.042
Home and bank accounts	94.642	723.260	283.678
<i>CURRENT ASSETS TOTAL</i>	<i>5.996.420</i>	<i>6.116.387</i>	<i>1.498.846</i>
Expenses registered in advance	998	1.185	1.231
TOTAL ASSETS	6.022.124	6.141.721	1.525.376
PASSIVE	31.12.2018	31.12.2019	31.12.2020
Paid subscribed capital	200	200	200
Revaluation reserves	0	0	0
Reserves	136.015	136.015	134.008
Deferred result	121.404	329.952	811.249
Result for the year	208.548	479.290	-4.755.782
<i>OWN CAPITAL</i>	<i>466.167</i>	<i>945.457</i>	<i>-3.810.325</i>
<i>TOTAL SHORT-TERM DEBT</i>	<i>1.099.301</i>	<i>2.004.283</i>	<i>1.987.989</i>
<i>TOTAL LONG-TERM DEBT</i>	<i>4.456.656</i>	<i>3.191.981</i>	<i>3.347.712</i>
Advance income	0	0	0
TOTAL LIABILITIES (6+7+8+9)	6.022.124	6.141.721	1.525.376

No.	SPECIFICATION	31.12.2018	31.12.2019	31.12.2020
1	Total assets	6.022.124	6.141.721	1.525.376
2	Current assets	5.996.420	6.116.387	1.498.846
3	Reinvested profit	0	0	0
4	Own capital	466.167	945.457	-3.810.325
5	Profit/Loss	329.952	809.242	-3.944.533
6	Total debts	5.555.957	5.196.264	5.335.701
7	Fiscal value	2.340.265	3.462.123	3.525.835

Capital assets represent an important component of the patrimonial assets of any company and constitute the material and financial basis necessary for the development of the activity.

The fixed assets within the debtor are formed, according to the verification balance on 31.12.2020, from: intangible assets in the amount of 1.500 lei, tangible fixed assets in the amount of 14.466 lei, financial fixed assets in the amount of 9.333 lei.

The stocks represent an important asset of any company, and from a physical point of view they are made, according to the verification balance on 31.12.2020, of goods with a total value of 934.126 lei.

Receivables represent amounts from various customers and debtors. In the case of the debtor's receivables, they follow an oscillating trajectory and are mainly represented by receivables from customers. Structurally, the existing receivables in the balance sheet as of 31.12.2020 are in the amount of 281.042 lei.

Cash availability follows a downward trajectory and at the end of 2020 amounted to a total of 283.678 lei.

The debts have an oscillating evolution, the highest value being registered in 2020, namely 5.335.701 lei.

Bankruptcy risk analysis

“The scoring method is an external diagnosis method that aims to measure the risk to which the investor, creditor and the company itself expose themselves in future activity”³.

„There are several models developed worldwide, especially in developed countries: USA (Beaver, Altman, etc.), Great Britain (Taffler), France (Conan and Hoder, Bank of France, etc.), Japan (Shirata) and others”⁴.

Debt risk analysis of the debtor X was performed based on the last 3 financial statements accounts prepared prior to the insolvency proceeding, using the method of solvency and liquidity rates, as well as the method of scores, from which the Altman model or the „Z” model was applied

A) Bankruptcy risk analysis by solvency and liquidity rates method

The solvency analysis aimed at the debtor's ability to pay its total debts based on the total resources, following the risk of total long-term inability to pay. The liquidity analysis assessed the borrower ability to pay off short-term debt based on existing resources, or in other words, the borrower's ability to convert assets into cash at any given time.

The analysis of the solvency and liquidity indicators presented in the table above shows the following conclusions:

1. Net accounting asset represent equity, calculated as the difference between total assets and total contracted liabilities, or by adding to share capital the results or reserves of shareholders. Unlike equity, the notion of net situation is more restrictive, excluding from their category investment subsidies and regulated provisions. Therefore, the net asset indicator is more relevant, expressing the value of the realizable asset at a given time. This indicator is of interest not only to shareholders, who want to know the value they own, but also to creditors for whom the realizable asset is a pledge of their claims.

³ Sabău, C., Uher, Marina, Nagy, Cristina, Mihaela. (2015). „Contabilitatea reorganizării și lichidării întreprinderii”. Editura Eurostampa, Timișoara. p. 168

⁴ Căta (Gherheș) Daniela, Nagy Cristina Mihaela (2019). Methods For Determining The Risk Of Bankruptcy. Annals. Economic Science Series Vol XXIV. p. 11

Table 4. Solvency and liquidity ratio analysis

Nr. crt.	Solvency and liquidity rates	31.12.2013	31.12.2014	31.12.2015
<i>I. Solvency rates (RS)</i>				
1	Net accounting assets = Total Assets – Total Debts (> 0)	466.167	945.457	-3.810.325
2	Patrimonial RS = Own capital/Passive (> 0.5)	0,077	0,154	-2,498
3	General RS= Total Assets/ Total Debts (> 1)	1,084	1,182	0,286
4	Total indebtedness rate = Total debts/Own capital (<2)	11,918	5,496	-1,400
<i>II. Liquidity rates (RL)</i>				
1	Working capital fund = Currents assets – Short-term debts (> 0)	4.897.119	4.112.104	-489.143
2	General RL = Current Assets/ Short-term debts (> 1)	5,455	3,052	0,754
3	Reduced RL = Current assets – Stocks/Short-term debts (> 0.5)	0,545	0,477	0,284
4	Fast RL = Cash/Short-term debts (> 0.2)	0,086	0,361	0,364

Accounting net assets are non-debt assets and are calculated as the difference between total assets and total claims, thus providing an indication of the overall solvency as well as the size of the company's equity. The net accounting assets registered between 2018 and 2019 were positive, which shows that the debtor had sufficient assets to cover the contracted debts. The positive and growing net situation reflects a healthy economic situation because the debtor's assets grow faster than the debts accumulated by it, and the net profits are generally positive. The net accounting assets registered in 2020 were negative, reflecting an unfavorable situation of the company, because the debts contracted by the company could not be paid on account of the assets held.

2. Solvency highlights a company's ability to meet long-term and medium-term maturities and depends on the size of these debts and the cost of borrowing. Therefore, to the extent that the real asset is sufficient to enable it to pay all debts, the company is solvent. Thus, the solvency follows its capacity to pay its total obligations from total resources, based on this indicator being able to assess the risk of long-term payment incapacity.

In the period preceding the opening of the insolvency proceedings, the patrimonial solvency rate registered values below optimal threshold, representing a rather small share of equity in total liabilities.

The overall solvency ratio reflects the extent to which total debt is covered by the company's total assets. The analysis of the general solvency of the company, shows in 2020, a weak capacity to pay its total obligations based on the total resources, the company being insolvent.

3. The global ratio debt measures the share of total debt in the company's assets. It shows to what extent the borrowed and attracted sources participate in the financing activity. For this indicator to reflect a low degree of indebtedness, it must be less than 2 and positive.

Between 31.12.2018 and 31.12.2020, the total debt ratio reflects a difficult financial situation of the company, which cannot cover the debts accumulated on account of equity. The maximum allowable level is exceeded throughout the period, due to a constant higher increase in total debt compared to total liabilities. The increase debt is due to both short term and long-term debt increase, leading to a state of insolvency.

4. Working capital represents the difference between permanent capital and fixed assets, showing the surplus resulting from the financing of the means of production necessary for the activity from own capital and those borrowed on a long-term basis. This surplus is intended to cover to some extent the need for working capital. Depending on the extent to which this is done, a certain state of the existing financial balance is outlined. Basically, the working capital represents the surplus of net current assets in relation to temporary debts. The working capital thus calculated expresses the surplus of permanent resources resulting from the financing of investments, which can be rolled to finance current assets. In other words, working capital is the expression of achieving long-term financial balance and its contribution to achieving short-term financing balance. In 2020 there was a dramatic decrease in working capital well below the threshold of 0, the current assets of the company being insufficient to cover short-term debts. In the case, we have an unfavorable situation in the period preceding the opening of the bankruptcy procedure represented by a negative working capital, with fluctuating values in the negative sphere, which denotes a state of financial imbalance.

5. The overall liquidity ratio shows the extent to which current liabilities can be covered by current assets. In 2020, the level of the indicator was below the minimum value of 1, which shows that the company did not have the opportunity to fully cover current debts on current assets, reflecting a weak ability to pay short-term debts. This situation is possible due to the higher growth of short-term debt compared to current assets, and the cash generated from sales could not cover the debts.

The low liquidity rate expresses the company's ability to pay off its short-term debts from receivables, short-term financial investments and cash. Low liquidity excludes inventories from current means of payment, which are the slowest element in terms of the potential to convert current assets into liquidity.

In 2020, the low liquidity rate recorded values below the optimal one of 0,50, reflecting an impossibility to repay short-term debts and implicitly an increased risk of insolvency.

The fast liquidity rate, also called the treasury rate, assesses the extent to which short-term payables can be covered by cash. In 2020, the indicator was precautionary, which means that the company was able to cover its current debts due to cash, which were sufficient.

B) Bankruptcy risk analysis by scoring method - Altman model or „Z” model

The „Z” model is a bankruptcy forecasting model that includes five variables considered to be the most representative for a company, namely: company flexibility(R1), total asset self-financing rate(R2), economic rate of return(R3), financial independence and return on assets.

Table 5. The variables

NAME OF VARIABLES	31.12.2018	31.12.2019	31.12.2020
R1 = Current assets/Total assets- expresse the share of working capital in total assets	0,996	0,996	0,983
R2 = Reinvested profit/Total assets- expresses internal financing capacity	0,000	0,000	0,000
R3 = Gross profit/Total assets- expresses the return on assets	0,055	0,132	0,000
R4 = Own capital/Total debts - measures financial independence	0,084	0,182	-0,714
R5 = Turnover/Total assets - measures the turnover rate of assets	0,389	0,564	2,311
$Z = 1.2*R1+1.4*R2+3.3*R3+0.6*R4+0.999*R5$	1,814	2,302	3,060
Interpretation of the result	Difficulty, undetermine d risk of bankruptcy	Difficulty, undetermine d risk of bankruptcy	Solvancy, non-existent risk of bankruptcy

Table 6. The correlation between the values of the Z function and the probability of bankruptcy

<i>Z score value</i>	<i>Company situation</i>	<i>Bankruptcy risk</i>
$Z > 2,675$	Good - solvency	Reduced
$1.81 < Z < 2,675$	Precarious -difficulty	Undetermined
$Z < 1,81$	Heavy - difficulty	Imminent - maximum

Source: 1.Căta (Gherheş) Daniela, Nagy Cristina Mihaela (2019). Methods For Determining The Risk Of Bankruptcy. Annals. Economic Science Series Vol XXIV. pp. 12-13, https://fse.tibiscus.ro/images/anale/lucrari/Lucrari2019/AnaleFSE_VolXXIV_002.pdf

CONCLUSION

Following the analysis of the score functions, which is mainly based on the efficiency of the use of the asset, we found out that X company encountered some financial difficulties in the period prior to the opening of the bankruptcy procedure.

From the analysis of the bankruptcy risk according to the Altman function model, it was found, according to the financial-accounting situation between 31.12.2018-31.12.2020, that X company is in difficulty but did not present a determined risk of bankruptcy, the analysed indicator registering values below the minimum limit of 2,675.

In view of the difficult financial and accounting situation of the company, as well as in order to prevent the accumulation of debts, as a result of the analysis, the debtor filed a request to open the general insolvency procedure with the intention to reorganize the company.

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