

***Kornilova Iulia Sergeevna***

student

Scientific adviser

***Tsertseil Juliya Sergeevna***

Candidate of Economic Sciences, Associate Professor

Plekhanov Russian University of Economics

Moscow

## **FINANCIAL HEALTH OF THE COMPANY AS A FACTOR OF THE COMPANY'S STRATEGIC DEVELOPMENT**

***Abstract:*** *this article considers various methods of assessing the probability of bankruptcy of the company. It describes the main statistical models and their application for forecasting the financial condition of the company on the example of PJSC Tatneft. Also analyzes the factors that may affect the investment attractiveness of the company. In conclusion, the author draws a conclusion about how effectively the company uses its cash and suggests measures to improve some financial indicators.*

***Keywords:*** *PJSC Tatneft, bankruptcy, Altman's model, Taffler's model, Springate's model, financial stability, forecasting models, oil industry.*

***Корнилова Юлия Сергеевна***

студентка

Научный руководитель

***Церцеил Юлия Сергеевна***

канд. экон. наук, доцент

ФГБОУ ВО «Российский экономический

университет им. Г.В. Плеханова»

г. Москва

DOI 10.31483/r-110343

## **ФИНАНСОВОЕ ЗДОРОВЬЕ КОМПАНИИ КАК ФАКТОР СТРАТЕГИЧЕСКОГО РАЗВИТИЯ КОМПАНИИ**

***Аннотация:** в статье рассматриваются методы оценки вероятности банкротства компании. Описываются основные статистические модели и их применение для прогнозирования финансового состояния компании на примере компании ПАО «Татнефть», анализируются факторы, которые могут повлиять на инвестиционную привлекательность компании. В заключение сделан вывод о том, насколько эффективно компания использует активы, предлагаются меры по улучшению некоторых финансовых показателей.*

***Ключевые слова:** ПАО «Татнефть», банкротство, модель Альтмана, модель Таффлера, модель Спрингейта, финансовая устойчивость, модели прогнозирования, нефтяная промышленность.*

#### Introduction.

Many market participants, such as owners of firms, their employees, various counterparties and even budgets of regional and municipal levels are affected by bankruptcy, the consequences of which depend mainly on the scope of financial and economic activity of the company and its scale. Therefore, the bankruptcy of a large company can cause severe damage to the economy in a particular region and in the country as a whole. For the development of the Russian economy in the future it is necessary to pay special attention to the possibility of crisis situations, unfavorable trends in the markets, as well as to be able to predict the bankruptcy of the company. Various domestic and foreign bankruptcy forecasting models exist and are actively used for this purpose. Nevertheless, there are still no such techniques that allow to predict a crisis situation for a company with 99% accuracy [2].

The term «bankruptcy» has several definitions, which vary greatly in complexity and detail. The most familiar and frequently used wording is bankruptcy according to the Federal Law No 127-FZ. «On Insolvency», where insolvency (bankruptcy) is the debtor's inability to fully satisfy the claims of creditors on monetary obligations, on payment of severance pay or on payment of wages to persons working or who worked under an employment contract, or to fulfill the obligation to pay mandatory payments

recognized by an arbitration court or occurring as a result of the completion of an extrajudicial bankruptcy procedure of a citizen [1].

It is necessary to take into account that there are many reasons of bankruptcy, but it is necessary to consider them in complex and interaction, as it is unlikely that the occurrence of only one factor will lead to bankruptcy. Understanding the factors and causes of bankruptcy will enable business entities to organize management of available production, financial, human, and intellectual resources in order to ensure stable development and avoid bankruptcy. After all, the only way to get out of a crisis situation is to eliminate the causes of its emergence. Although bankruptcy is prevent-able, it remains a necessary condition of the modern world, through which the less successful companies are selected from the more advanced, usually large firms with competent internal management oversight of operations.

Methodology of research.

In current unstable economic environment, it is crucial to assess the bankruptcy in the proper way, that can be done by several different methods. Now there are a large number of different foreign and domestic methodologies (Table 1) designed to assess the probability of bankruptcy. Western assessment systems are considered the most common in use.

Table 1

Existing models for predicting company's bankruptcy

Model	Year	Number of factors	Country	Business industry
Beaver's	1966	5	USA	Universal
Altman's	1968	5	USA	Universal
Lis' R.	1972	4	UK	Universal
Taffler's	1977	4	UK	Joint-stock companies
Springate's	1978	4	USA	Universal
Zmijewski's	1984	3	USA	Universal
Sayfullina's	1996	5	Russia	Universal
Zaitseva's	1998	6	Russia	Universal
Belikova's- Davydova's	1998	4	Russia	Universal
Grigaravicius's	2003	9	Lithuania	Universal
Savitskaya's	2003	5	Russia	Agricultural sector

Source: compiled by the author based on source data [5].

## Formulas and interpretation of scores for bankruptcy prediction models

Model	Formula	Score
Altman	$Z=1.2X_1+1.4X_2+3.3X_3+0.6X_4+1.0X_5$ $X_1$ = working capital/total assets; $X_2$ =retained earnings/total assets; $X_3$ =EBIT/total assets; $X_4$ =equity/total liabilities; $X_5$ =revenue/total assets	Stability: $Z>2,99$ «Grey zone»: $1,81<Z<2,99$ Bankruptcy: $Z<1,81$
Taffler and Tishaw	$Z=0.53X_1+0.13X_2+0.18X_3+0.16X_4$ $X_1$ =earnings before taxes/current liabilities; $X_2$ =current assets/liabilities; $X_3$ =current liabilities/total assets; $X_4$ =(cash and cash equivalents+short-term investment-current liabilities)/(operating costs-depreciation)	Stability: $Z>0,3$ «Grey zone»: $0,2<Z<0,3$ Bankruptcy: $Z<0,2$
Zmijewski	$Z=-4.3-4.5X_1+5.7X_2-0.004X_3$ $X_1$ =ROA=net income/total assets; $X_2$ = total liabilities/total assets; $X_3$ =current assets/current liabilities	Stability: $P<0,3$ «Grey zone»: $0,3<P<0,6$ Bankruptcy: $P>0,6$
Springate	$Z=1.03X_1+3.07X_2+0.66X_3+0.4X_4$ $X_1$ =working capital/total assets; $X_2$ =EBIT/total assets; $X_3$ =earnings before taxes/current liabilities; $X_4$ =revenue/total assets	Stability: $Z>0,862$ Bankruptcy: $Z<0,862$

Source: compiled by the author based on source data [3].

In the research it is going to be considered 4 different foreign models of predicting the bankruptcy. They can be describing as classic statistical models that can be applied for every company in various sectors. Altman's, Springate's and Taffler-Tishaw model were made on the basis of linear discriminant analysis models, while Zmijewski model are based on logistic regression, where probability of bankruptcy (P) is calculated by the formula  $P=1/(1+e^{-z})$ . Main conclusions about whether the company is going to be bankrupt or not will be made on Z and P scores, where:

- «stability» means that company is unlikely to be bankrupt in recent years because it has financial health;
- «grey zone» means that the company now is on the stage of uncertainty and some measures in this stage need to be applied for recovering;
- «bankruptcy» means that company now is likely to bankrupt in one year.

For analyzing the possibility of bankruptcy, PJSC TATNEFT was chosen. «Tatneft» is one of the largest Russian vertically integrated companies, which dynamically develops oil and gas production, oil refining, oil and gas chemistry, tire business, gas station network, composite cluster, electric power industry, development and production of equipment for oil and gas industry and a block of service structures. Full name – V.D. Shashin Public Joint Stock Company Tatneft. Headquartered in Almet'yevsk (Tatarstan). The main assets of the company are located in the Republic of Tatarstan, business projects are conducted in the domestic and foreign markets.

Table 3

Main financial indicators from the balance sheet of the company  
and income statement

Indicators, mln. rubl.	2020	2021	2022
<i>From Balance</i>			
Total assets	1263441	1502289	1675837
Cash and cash equivalents	40105	66487	167864
Short term financial assets	44314	108162	23764
Inventories	44988	81062	77382
Account receivables	83734	89004	107869
Current assets	258995	412242	456426
Working capital	-32516	-9872	41372
Non-current assets	1004446	1090047	1219411
Total liabilities	431851	558914	571393
Short-term liabilities	291511	422114	415054
Long-term liabilities	140340	136800	156339
Equity	831590	943375	1104444
<i>From Income Statement</i>			
Revenue	720677	1205267	1427147
Operating profit	138090	247353	400390
Net income	102573	198886	284903
Retained earnings	739641	850198	1010027
D&A	40865	42663	48042
Operating cost	451710	847660	176600

Source: compiled by the author based on source data [4].

Financial indicators that it needed for analyzing the possibility of bankruptcy using different foreign models are shown in the Table above. And according to these data

it will be possible to make a conclusion about overall financial position of the company PJSC Tatneft.

Table 4

## Dynamics of revenue and net income for PJSC Tatneft

Indicators, mln. rubl.	2020	2021	2022	Change 2021/2020	Change 2022/2021
Revenue, mln rub.	720677	1205267	1427147	67%	18%
Net income, mln rub.	102573	198886	284903	93%	43%
ROE	12,33%	21,08%	25,80%	70,92%	22,36%
ROA	8,12%	13,24%	17,00%	63,07%	28,41%

Source: compiled by the author based on source data [6].

Over the last 3 years it can be observed the growth of revenue and net profit of the company (Table 4). The growth rate of net profit of the company is much higher than the growth rate of revenue, in 2022 the revenue grew by only 18%, and net profit by 43%. This indicates that the business optimizes costs and operating expenses for its sales while skillfully increasing the volume of product sales. The golden rule states that for a company to operate effectively, profit growth must be higher than revenue growth. Despite good results in overall dynamics of some financial indicators, the assessing bankruptcy would be a good complement to an assessment of the company's overall financial health and its ability to continue as a going concern without significant risks.

Table 5

## Calculation of Z-scores for PJSC Tatneft

Altman	2020	2021	2022	Taffler and Tishaw	2020	2021	2022
X1	-0,03	-0,01	0,02	X1	0,47	0,59	0,96
X2	0,59	0,57	0,60	X2	0,60	0,74	0,80
X3	0,11	0,16	0,24	X3	0,23	0,28	0,25
X4	1,93	1,69	1,93	X4	-0,41	-0,33	-1,08
X5	0,57	0,80	0,85	Z>0,3	0,31	0,40	0,49
Z>2,99	2,88	3,14	3,67				
Zmijewski	2020	2021	2022	Springate	2020	2021	2022
X1	0,08	0,13	0,17	X1	-0,03	-0,01	0,02
X2	0,34	0,37	0,34	X2	0,11	0,16	0,24
X3	0,89	0,98	1,10	X3	0,47	0,59	0,96

Z	-2,72	-2,78	-3,13	X4	0,57	0,80	0,85
P<0,3	0,06	0,06	0,04	Z>0,862	0,85	1,21	1,74

Source: compiled by the author.

From the above data, it can generally be said that PJSC Tatneft is almost unlikely to go bankrupt or the risks of insolvency are estimated to be minimal, even in 2020, when there was a really difficult situation in the world, because of pandemic. Moreover, it can be seen that from year to year the financial stability is increasing and Z-score becoming better and higher. Only according to Altman's and Springate's model in 2020 the company fell into the «grey zone», but in 2021 it completely recovered. It can be also concluded that even different models have quite the same total results. From the above data, it can generally be said that Tatneft is almost unlikely to go bankrupt or the risks of insolvency are estimated to be minimal.

#### Conclusion.

Even though PJSC Tatneft has insignificant risks of bankruptcy, and the company has a fairly high position in the oil market, it is still necessary to analyze ways to strengthen the company's financial stability and gain leader position in the industry of gas and oil companies.

In calculating the ratios to assess the likelihood of bankruptcy of PJSC Tatneft, many important financial indicators have been involved and calculated to assess the company's performance and find vulnerable areas. X3 in Zmijewski it is a current liquidity ratio, working capital ratio, share of working capital in current assets like X1 in Altman's model. For example, during 2020 and 2021 under analysis the value of the current liquidity ratio is lower than the recommended (normative) one, only in 2022 it become quite good. There was a drop below unity, which indicates that Tatneft was not able to repay 100% of its short-term liabilities by selling all its current assets.

A company can always strengthen itself by reducing its operating costs. This means creating strategies to simplify its financial and production processes, utilizing shared services-such as information technology-more effectively, streamlining its business operations, and, if feasible, cutting costs across all production links (such as transportation and refining).

Profit ratios are most commonly used in financial analysis. On the other hand, profit-based ratios could not provide a reliable outcome. A firm's financial health may suffer if, for instance, it makes a lot of sales on credit but does not get cash; this is because the company has payment commitments. Since profit may be manipulated, ratios based on cash flows are seen to be more accurate than those based on income and profit. In calculating the ratios, the accrued figures are taken from the income statement data, and the paid figures from the Cash flows statement [4].

Cash flow coverage ratios of revenue and profit, which are calculated by dividing net operating cash flow by revenue or net income, can be chosen for analysis of effectiveness of using cash flows and consider them in dynamics for the last 2 years.

Cash flow coverage ratio of revenue was 22% in 2021 and increased by 3% to 25% in 2022. There is no single standard for understanding what this indicator should be because it depends on the industry and the activities of companies. But it should be remembered that a scenario where sales increases without matching rise in operational cash flow is bad for the business. This measure should be able to track changes in a company's revenues, thus an increase in sales should also result in an increase in operational cash flow. Should this not be the case, the cause might be either imprecise sales accounting or poor receivables management. As for cash flow coverage ratio of net income, in 2021 this indicator was at 1.34 and in 2022 it became 1.26, i.e. it decreased. However, both values exceed the norm, which for this indicator is 1. This shows the ability to finance its activities by generating operating cash flow. A higher ratio means that the company's earnings are of higher quality.

Thus, now PJSC Tatneft has no special problems that could negatively affect the value of the company and affect its business reputation. The company shows excellent results even in the conditions of crisis, but even such good financial indicators should be maintained and improved by means of various measures.

### ***References***

1. Federal Law of 26.10.2002 N 127-FZ (rev. of 21.11.2022) «On Insolvency (Bankruptcy)» [Electronic resource]. – Access mode: [https://www.consultant.ru/document/cons\\_doc\\_LAW\\_39331/](https://www.consultant.ru/document/cons_doc_LAW_39331/) (date of application: 04.03.2024).



2. Prokhorin I.A. Factors and causes of bankruptcy of enterprises in the conditions of modern economy // Young scientist. – 2019. – №18 (256). – C. 202–204.
3. Shi Y., Li X. A bibliometric study on intelligent techniques of bankruptcy prediction for corporate firms. Heliyon. 2019; 5(12):1–12 [Electronic resource]. – Access mode: <https://pubmed.ncbi.nlm.nih.gov/31890956/> (date of application: 04.03.2024). <https://doi.org/10.1016/j.heliyon.2019.e02997>. EDN: QGHFUG
4. Annual reports of PJST Tatneft [Electronic resource]. – Access mode: <https://www.tatneft.ru/en/aktsioneram-i-investoram/raskritie-informatsii/godovie-otcheti> (date of application: 04.03.2024).
5. Bankruptcy probability assessment – methods and models [Electronic resource]. – Access mode: <https://schetuchet.ru/ocenka-veroyatnosti-bankrotstva-metody-i-modeli/?ysclid=lcbw623fy1260625759> (date of application: 04.03.2024).
6. Official website of PJSC Tatneft [Electronic resource]. – Access mode: <https://www.tatneft.ru> (date of application: 04.03.2024).