ASSESSMENT OF RISK OF BANKRUPTCY OF THE COMPANIES PARTICIPATING IN THE INTERNATIONAL STRATEGIC ALLIANCE

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Abstract

The globalization of world economic processes leads to increased competition, increased risks, with the same causes in different countries, which ultimately can lead business to bankruptcy.

The purpose of the study is to develop a rapid assessment tools risks bankrupting companies in international strategic alliances. The methodological basis of the research served as the scientific works of foreign and Russian scientists, expert, mathematical-statistical and analytical methods, systematic approach to address the problem of diagnostics of the probability of bankruptcy.

Results: The authors have substantiated and tested by the economic model for the assessment of risk of bankruptcy of the companies participating in international strategic alliances.

Keywords: risk of bankruptcy, proximate analysis, international strategic alliance.

1. INTRODUCTION

High macroeconomic risks lead to instability of the world economy, which leads to an increase in the level of bankruptcies in national economies. Arbitration statistics in the Russian Federation indicate an increase in the number of liquidated companies, including as a result of bankruptcy procedures in various sectors of the economy by 10-20% compared to 2016. Over the past decade, the share of "willful" bankruptcies has increased, when companies are trying to deliberately avoid fulfilling their obligations to business partners and the state. A combination of negative phenomena caused by geopolitical confrontation and a difficult economic situation in the world as a whole caused the emergence of problems leading to the financial and managerial crisis of companies belonging to international strategic alliances. In this regard, the assessment of bankruptcy risks is an important tool for effective management, which performs information-analytical and control-diagnostic function. The presented justification of the economic model and the tools for rapid assessment of the risks of bankruptcy allow you to quickly track trends, promptly identifying problems in business.

2. ANALYSIS OF SCIENTIFIC AND PRACTICAL APPROACHES TO THE FORMATION OF INTERNATIONAL STRATEGIC ALLIANCES AND DIAGNOSIS OF RISKS OF BANKRUPTCY OF THE COMPANIES INCLUDED IN THEM

Strategic alliances in the modern world economy are a promising form of integration of companies, aimed primarily at increasing the competitiveness, sustainability and efficiency of business operations. Table 1 presents the generalized scientific and practical approaches to the disclosure of the concept of strategic alliances, based on the definition of their place in the system of inter-firm relations; communication with the strategic objectives of the participants; features of strategic alliances in the access of partners to resources, taking into account each other's competences in matters of corporate control and management [1], [3], [7].

Table 1: Scientific and Practical Approaches To The Definition Of Strategic Alliances

Subject of the approach	Authors	Content of approaches
The place and role of the strategic alliance in the system of inter-firm relations	Garrett B., Dussoss P., M. Porter	The concept of intermediate inter-firm relations, according to which firms already carry out activities in the common interest, sacrificing part of their economic autonomy, but their joint activities have not yet led to a complete merger of companies
Strategic goals and resources of partners	A. Heck, Pausenberg E., Buckhouse K., Das T., Teng B.	Alliances are linked to the strategic goals and interests of their participants. Goals are considered strategic if they predetermine the company's movement into the future, and if related to the creation and strengthening of its competitive advantage. Focus on the purpose of joining the alliance.
Inter-firm management and control structures	Gomez-Casseres B.	Alliances - the mechanisms of management and decision-making, characteristic for inter-firm consolidation.
The legal approach	UNCTAD, Bundeskartellamt	Definition on the basis of generalizations of opinions of experts. Strategic alliances are considered in the context of the main strategies of transnational corporations.

Strategic alliances provide a stable global presence in the markets, creating an advantageous competitive position in the future. They are common in those industries where the situation is rapidly changing. Therefore, companies belonging to international strategic alliances are characterized by increased risks, which, in the final analysis, can lead the business to bankruptcy.

The Institute of Bankruptcy in Russia is young compared to other countries. However, the methodological support of the control and diagnostic procedures for revealing signs of bankruptcy must develop and meet the needs of the modern economy and the standards of international law. The toolkit should allow economically inefficient companies to cease operations with the least negative consequences for all business partners and creditors. It must also prevent intentional bankruptcy on the part of the owners or other interested persons attempting to use the bankruptcy procedure for their own mercenary purposes.

The conducted research of the Russian and foreign methodical support of bankruptcy diagnostics showed that there are a number of methods that allow to identify the risks of bankruptcy, including as a result of distortion of financial information. The features of these methods are analyzed in [2], [4], [6], [7], [14] and are summarized in Table 2.

Table 2: Generalization and Analysis of The Most Used Russian And Foreign Methods Of Bankruptcy Diagnostics

Methodology, authors	Content of the methodology	Diagnosis of bankruptcy	Diagnosis of signs of willful bankruptcy
1	2	3	4
Methodology of score-rating evaluation, based (D.Dyuran, GV Savitskaya, LV Dontsova, NA Nikiforova)	Calculation and distribution of liquidity ratios, financial independence, provision of own funds and provision of stocks with own capital are carried out. Depending on the amount of calculated points, the probability of creditworthiness is determined, including the assessment of bankruptcy.	+	-
Discriminant models based on methods of mathematical statistics (E. Altman, R. Tuffler, G. Tishou, A. Fulmer, G. Sprangeit, F. Fox, O.P. Zaitseva, A.V. Kolyshkin, G.V. Savitskaya)	They are based on the use of retrospective statistical data on indicators of the solvency of companies and the formation of a regression model in the form of a mathematical formula for calculating the effective (integral) indicator, taking into account the corrective coefficients. The final indicator characterizes the probability of bankruptcy of the organization. The number of indicators in different models varies from two to nine, the accuracy of the model depends largely on their number and the values of the correction coefficients.	+	-
A technique for forecasting bankruptcy based on an assessment of the tax burden (MN Kreinina, EA Kirova, MI Litvin)	It is based on assessing the company's tax burden, determined on the basis of indicators that characterize: the ratio of the amount of taxes to revenue, net profit and value added.	+	-
The system of indicators U. Beaver	Forecasts bankruptcy based on the calculation of the author's ratio (the ratio of net profit and depreciation to borrowed funds). To determine the time range of the possible onset of bankruptcy, an assessment matrix is used that includes an assessment of the impact on the business of the level of return on assets, the share of borrowed funds in the sources of financing, current liquidity, and the share of net working capital. Allows you to diagnose bankruptcy for several years in advance.	+	-
The mathematical law of Frank Benford ("law of anomalous numbers")	The methodology is based on the mathematical justification of an artificially created array of data obtained from a single source, with the help of which the probability of distortion of financial statements of companies is determined.	-	+
The model of M. Benish ("map of normative deviations of financial indicators")	Assumes the calculation and evaluation of several quality dynamic indicators - the rate of change: the turnover of receivables (DSRI), the share of marginal revenue in revenue (GMI Asset Quality (AQI), SGI, depreciation (DEPI), share of sales costs in revenue SGAI), financial leverage (LVGI), changes in working capital and total assets (TATA), based on the integral indicator M. If its value exceeds -2.22, then the probability of unreliable reporting is more than 75%.	-	+
A methodology based on an analysis of the discrepancy between operating profit and cash flow	The dynamics of changes in operating profit and cash flow from operating activities when studying them in the long term (1 year or more) is the same. If the organization has a profit, however, there is no inflow of cash, or no profit, and cash continues to flow and such discrepancies are observed for a sufficiently long period of time, then one can speak of distortions in its financial statements.	-	+
A methodology of ACFE (Association of Certified Fraud Examiners)	The methodology includes not only the methods of analyzing the economic activities of organizations, but also certain aspects of audit, audit and even forensic accounting expertise. The analysis of the activities of organizations will be carried out by a group of specialists in accounting, analysis, auditors, lawyers and even specialists from the staff of the research organization.	+	+

Today, crisis processes are taking place in such important sectors for the world and national economies as the manufacturing industry, transport, automotive industry, financial sector, fuel and energy complex [8], [15]. According to arbitration statistics, over the past five years, more than 50,000 Russian companies failed to implement anti-crisis measures, about 1.8 million people lost their jobs [15]. Providing timely diagnostics of bankruptcy for companies of socially significant industries, including those included in strategic alliances, in the future will be able to reduce the number of liquidated companies.

3. RISCORIENT ECONOMIC MODEL OF EXPRESS EVALUATION OF THE PROBABILITY OF BANKRUPTCY

The approach we propose to developing a methodology for assessing the risks of bankruptcy of companies included in an international strategic alliance consists of several steps. The first step is a qualitative analysis and selection of the most significant groups of risk factors that can lead to bankruptcy. Based on the conducted research, a system of bankruptcy risks was developed, grouped into 7 groups (Table 3). For each group of risks, a system of valuation indicators is established (Table 3).

Table 3:   Methodology for Assessing the Risks Of Bankruptcy Of Companies Included In The International Strategic Alliance

Types of risks	Valuation indicators	The trend of changing risk	Type of risk situation			Indicator weight
			Catastrophic risk	Average risk	Minimum risk	
1	2	3	4	5	6	7
Risk of deterioration in financial performance	Return On Assets	↓	< 1,6%	1,6%-3,5%	>3,5%	0,0654
	The growth rate of net profit, in fractions of a unit	↓	<1	1-1,12	>1,12	0,0588
Managerial risks	The growth rate of staff productivity, in fractions of a unit	↓	<0,9	0,9-1,05	>1,05	0,0523
	The coefficient of advancing labor productivity over wage growth	↓	<0,8	0,8-1,2	>1,2	0,0458
The risk of a decline in financial sustainability	Coefficient of financial stability	↓	<0,6	0,6-0,8	>0,8	0,1111
	Coefficient of capitalization (leverage of financial leverage)	↑	>1,5	1-1,5	<1	0,1046
	Coefficient of own circulating assets	↓	<0,05	0,05-0,4	>0,4	0,0980
	Coefficient of autonomy	↓	<0,4	0,4-0,6	>0,6	0,0915
Risks to reduce liquidity and insolvency	The share of accounts receivable in current assets, in fractions of a unit	↑	>0,65	0,3-0,65	<0,3	0,0850
	Coefficient of	↓	<0,3	0,3-0,6	>0,6	0,0784

	maneuverability of the functioning capital					
	Total liquidity ratio		<0,9	0,9-1,5	>1,5	0,0719
Market risks	The growth rate of revenue, in fractions of a unit	↓	<1	1-1,12	>1,12	0,0392
	The growth rate of material costs, in fractions of a unit	↑	>1,12	1-1,12	<1	0,0327
Tax risks	The growth rate of the coefficient of the tax burden on value added, in fractions of a unit	↑	>1,1	1-1,1	<1	0,0261
	The growth rate of the coefficient of the tax burden on profit, in fractions of a unit	↑	>1,1	1-1,1	<1	0,0196
Risks of Force Majeure (Uncontrolled Risks)	The growth rate of extraordinary expenses, in fractions of a unit	↑	>1,2	0,8-1,2	<0,8	0,0131
	Growth rates of the coefficient of environmental safety, in fractions of a unit	↓	<0,8	0,8-1,5	>1,5	0,0065

The selection of representative indicators is based on such principles as the relevance of the assessment for the company's features, the availability of an information base and the possibility of calculating selected indicators, ensuring comparability of the dynamics of indicators, preferring the use of dynamic indicators. Approaches to the development of a system of indicators are based on the studies described in [9], [10], [11], [12]. Next, the following algorithm is used to calculate the integral (score-rating) index of a company's risk-tolerance. Based on the Fishburn weighting system [5], risk factors are ranked according to their importance, they are weighed, and the assessment scale is justified. The proposed methodology uses a three-digit scale of assessments, where 3 points are the minimum risk (high level of risk-resistance), 2 points - the average risk; 1 point is a catastrophic risk. For each group of risks, threshold values are determined for each type of risk situations, and also taking into account the possibility of using criterial values (for example, for the current liquidity ratio) or based on the inflation rate (for example, for the rate of net profit growth) (Table 3). Since the components of the risk of the probability of bankruptcy affect each other, that is, there is an intersection of their spheres of influence on the activities of companies, the calculated integral indicator of risk-basedness Risk is determined by the formula:

$$Risk = k_1 * \Phi_1 + k_2 * \Phi_2 + k_3 * \Phi_3 + \ldots + k_n * \Phi_n, \qquad (1)$$

где Φ_1; Φ_2; Φ_3; …; Φ_n – risk factor assessment, from 1 to 3;
k_1; k_2; k_3; …; k_n – assigned weights to selected factors.

The value of the indicator Risk characterizes the overall level of the company's riskiness and determines the type of risk situation. The increase in the indicator characterizes the stabilization of the situation, a reduction in uncertainty, a reduction in the risk of bankruptcy.

4. APPROVAL OF THE METHODOLOGY OF ESTIMATION OF RISKS OF BANKRUPTCY OF COMPANIES INCLUDING IN THE INTERNATIONAL STRATEGIC ALLIANCE

"Siberia Airlines" is a member of the international strategic alliance "OneWorld". Table 4 summarizes the calculations for the system of indicators characterizing the risks leading to bankruptcy in 2015-2017.

Table 4: Express Assessment Of Bankruptcy Risks Of "Siberia Airlines"

Types of risks	Valuation indicators	Indicator values			Score of risk			Weight estimation		
		2015	2016	2017	2015	2016	2017	2015	2016	2017
1	2	4	5	6	7	8	9	10	11	12
Risk of deterioration in financial performance	Return On Assets	0,039	0,042	0,035	3	3	3	0,33	0,33	0,33
	The growth rate of net profit, in fractions of a unit	1,28	1,24	1,06	3	3	2	0,31	0,31	0,21
Managerial risks	The growth rate of staff productivity, in fractions of a unit	1,14	1,02	1,15	3	2	3	0,29	0,20	0,29
	The coefficient of advancing labor productivity over wage growth	1,03	1,07	0,88	2	2	1	0,18	0,18	0,09
The risk of a decline in financial sustainability	Coefficient of financial stability	0,31	0,39	0,39	1	1	1	0,08	0,08	0,08
	Coefficient of capitalization (leverage of financial leverage)	5,77	6,12	6,30	1	1	1	0,08	0,08	0,08
	Coefficient of own circulating assets	0,07	0,07	0,08	2	2	2	0,14	0,14	0,14
	Coefficient of autonomy	0,15	0,14	0,14	1	1	1	0,07	0,07	0,07
Risks to reduce liquidity and insolvency	The share of accounts receivable in current assets, in fractions of a unit	0,82	0,63	0,52	1	2	2	0,06	0,12	0,12
	Coefficient of maneuverability of the functioning capital	0,24	0,10	0,08	1	1	1	0,05	0,05	0,05
	Total liquidity ratio	0,67	0,92	1,00	1	2	2	0,05	0,09	0,09
Market risks	The growth rate of revenue, in fractions of a unit	1,12	1,13	1,16	2	3	3	0,08	0,12	0,12
	The growth rate of material costs, in fractions of a unit	1,13	1,14	1,16	1	1	1	0,03	0,03	0,03
Tax risks	The growth rate of the coefficient of the tax burden on value added, in fractions of a unit	1,08	0,29	0,56	2	3	3	0,05	0,08	0,08
	The growth rate of the coefficient of the tax burden on profit, in fractions of a unit	1,51	1,00	1,05	1	2	2	0,02	0,04	0,04
Risks of Force Majeure (Uncontrolled Risks)	The growth rate of extraordinary expenses, in fractions of a unit	0,00	0,00	0,00	3	3	3	0,04	0,04	0,04
	Growth rates of the coefficient of environmental safety, in fractions of a unit	1,00	1,10	1,09	2	2	2	0,01	0,01	0,01
Интегрированный показатель рискоустойчивости Risk								**2**	**2**	**2**

The results of approbation of the developed method of rapid assessment of bankruptcy risks on the basis of

public data of the company "Siberia Airlines", part of the international strategic alliance "OneWorld", characterize the company as a whole as risk-tolerant, with a stable position in the market. At the same time, attention should be paid to the negative trend in the growth rate of net profit. Within three years, this coefficient from the category of "minimum risk" has moved into the category of "medium risk". The company also has a catastrophic risk of "financial stability", which indicates that the company can not cover its obligations with its own funds, is entirely dependent on external sources and the policy of the strategic alliance to which it belongs. However, the positive factor can be considered an increase in the coefficient of financial stability from 0.31 to 0.38 over the past 3 years, while at the same time it did not affect the change in the position of the integral rating of risk-resistance. The ratio of own circulating assets has an average risk position, but with a positive trend. This proves that the company is also focused on using borrowed funds in current economic activities, and this requires support from the alliance. A positive factor is the decline in the share of accounts receivable. During the analyzed period, the indicator fell by 0.3 points and passed from the average risk to the minimum. At the same time, the coefficient of capital maneuverability is very low, and tends to decrease. This indicates that in emergency situations the company will not be able to withdraw capital or redirect it.

Thus, calculations of the integral indicator of bankruptcy risk carried out according to our methodology demonstrate the stable position of the company for three years, which can also be considered a factor of the positive impact of its functioning within the alliance.

5. CONCLUSIONS

The presented toolkit of rapid assessment of the risks of bankruptcy of companies belonging to international strategic alliances is based on the use of an extensive methodological base of research conducted by foreign and Russian scientists. In the developed methodology, a systematic approach to solving the problem of diagnosing the probability of bankruptcy is applied, based on expert, mathematical-statistical and analytical methods. The authors substantiated and tested the proposed economic model of assessing bankruptcy risks by the example of public data of the company "Siberia Airlines", part of the international strategic allworld OneWorld. This methodology can be applied in the audit of the group of companies [13].

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