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THE USAGE OF Z-SCORE MODEL AS BANKRUPTCY PREDICTION MODEL AND AN APLICATION TO COMPANIES OF KAZAKHSTAN*

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ABSTRACT

Corporate bankruptcy is a subject of extensive research, and since 1960's a number of models were developed to predict failures in the real world. The most prominent research was done by Dr. Edward Altman, who developed Z-score model in 1968 for the US companies, which has been extensively used by practitioners. In this model a set of financial ratios specific to a company are analyzed in order to give a judgment on the company's likelihood to go bankrupt. The goal of this paper is to see the efficiency of Altman's bankruptcy prediction model to Kazakhstan market. The model is built based on financial variables which are derived from financial statements of companies listed on Kazakhstan Stock Exchange (KASE).

Keywords: *Bankruptcy Prediction Models, Altman Z-Score, Kazakhstan.*

Z-SCORE MODELİNİN İFLAS TAHMİN METODU OLARAK KULLANIMI VE KAZAKİSTAN ŞİRKETLERİNE YÖNELİK BİR UYGULAMA

ÖZET

Şirketlerin iflası, geniş araştırmalara konu olmuştur. 1960'lı yıllardan bu yana bir takım modeller, başarısızlıkların tahmin edilmesi amacıyla geliştirilmiştir. Bunlardan Dr. Edward Altman tarafından, 1968 yılında Amerikalı şirketler için geliştirilen Z-score modeli, en çok pratikte kullanılan model olmuştur. Bu modelde, şirkete ait bir grup finansal oranın analizleri yapılmak suretiyle, şirketin iflas etme ihtimali hesaplanmaya çalışılmıştır. Bu çalışmada, Kazakistanda Altman'ın tahmin modelinin ne kadar verimli kullanılabileceği araştırılacaktır. Modelde kullanılan finansal veriler Kazakistan Menkul kıymetler Borsasına kayıtlı şirketlerin finansal tablolarından elde edilmiştir.

Anahtar Kelimeler: *İflas Tahmin Modelleri, Altman Z-Score, Kazakistan.*

* This paper is drived from unpublished MBA thesis " Assessing the Probability of Bankruptcy: Application of Altman's Z-Score Model to Kazakhstani Markets", MBA student, Aidarkhan Altey, Scientific Coordinator, Professor, Ph.D., Osman Shahin, Suleyman Demirel University, Kazakhstan.

1. INTRODUCTION

Altman provided three generic terms to represent business failure: "economic failure," "insolvency," and "bankruptcy". According to Altman, economic failure means that realized return on investment is significantly and continually under prevailing return on similar investments, whereas insolvency refers to a situation in which a firm cannot meet its current obligations, signifying a lack of liquidity (Gu and Kim, 2006:474). On the other hand, bankruptcy is a more severe condition in which a business enterprise, unable to meet its debt obligations, petitions a federal district court for either reorganization of its debts or liquidation of its assets.

The practice shows if the tendency leading the company in bankruptcy is determinded precently, the respective steps can be undertaken earlier and this probably could assist the company to escape the crisis situation. Consequently, the question asking what should be done rises to determine the method that will assist to forecast the development of situation on the early stage.

The international market does already have the bankruptcy institutions. What is not common to Kazakhstan. And the reason is that the bankruptcy issue became relatively recent problem for Kazakhstan. Nevertheless, some of the kazakhstani businesses understanding the tendency of depending on the overall world markets have developed their own risk determining divisions.

Speaking of the theoretical fundamentals, it now seems more relevant than ever to develop early warning systems, which can help prevent or avert corporate default, and which facilitate the selection of firms to collaborate with or invest in.

The major part of bankruptcy prediction models is based on the analysis of a sample of companies, drawn from a variety of industries, which ultimately raises a question of direct comparability of raw financial ratios of such companies. If industry effects are not taken into account, bankruptcy models do not perform well as different industries are dissimilar in respect to dynamics of business environment, length of product life cycles, capital intensity and profitability.

Data instability over time restricts the predictive ability of the models when applied to different periods of time and business cycle phases. This is due to the changing pattern of corporate behavior, performance and success rates under different cycle phases.

Firms respond and adjust their operational and financial activities (e.g. inventory turnover, R&D expenses, leverage, investments) according to the market conditions (demand for goods, business confidence, interest rates, unemployment) appropriate to the observed business cycle stage. Liquidity and debt levels change over time, with high market being the most liquid period. Consequently, any bankruptcy prediction model should in practice be used only to time periods and industries similar to the underlying empirically constructed models.

Lennox confirmed that economic cycle is one of the most important determinants of a corporate failure, as high amount of corporate bankruptcies occur during economic recessions (Lennox, 1999:757). We used the financial figures of

observed companies from one business cycle, particular prior to financial crisis to see whether the Altman's prediction model is practicable in these periods of economy.

One of this venerable and still used models for addressing bankruptcy of US industrial corporations is the so-called Z-score model introduced by Professor Edward Altman in 1968 (Altman, 1968:589-609). In this model, those unique characteristics of business failures are examined in order to specify and quantify a set of financial ratios as the variables, which are effective indicators and predictors of bankruptcy. Several models were produced for the analysis of companies in the UK and other countries. Although the number of already existing models is high, most of them are imperfect in the expose company classification. This is so, because the basis of all other methods and models is the Z-score Model (alternative name of Altman's score Model).

The common pattern that becomes evident in the literature is the difference in the number and type of variables used and the instability of the coefficients of the functions. Watson and Everett (1999) suggested that one of the possible explanations for the differences between models was the influence of the definition of financial failure on the results, which is usually constrained by the availability of data (Watson and Everett, 1999:31-47).

By the general description it is a multivariate formula for a measurement of the financial health of a company and a powerful diagnostic tool that forecasts the probability of a company entering bankruptcy within a 2 years period. Studies measuring the effectiveness of the Z-Score have shown that the model has a 70%-80% reliability.

Sixty-six companies were used - 33 failed and 33 successful. The first result was a formula with 22 functions. The function that contributed the least to discriminating between the failed and successful companies was dropped and the statistical software was run again. This was repeated over and over each time dropping the ratio which least contributed to discriminating between the failed and successful companies. In the case of the Altman model, five functions remained.

Professor Edward Altman's successful method was mainly based upon studies by another researcher William Beaver. William Beaver's work, published in 1966 and 1968, was the first to apply a statistical method, t-tests to predict bankruptcy for a pair-matched sample of firms. Beaver applied this method to evaluate the importance of each of several accounting ratios based on univariate analysis, using each accounting ratio one at a time. Altman's primary improvement was to apply a statistical method, discriminate analysis, which could take into account multiple variables simultaneously.

Beaver investigated bankruptcy prediction methods based on financial ratio (Beaver, 1996). He applied he Dichotomous Classification Test to 30 pieces of average finance ratio, which were separated into 6 categories. He used the criteria below for selecting significant financial ratio:

1. Which ratios have been adopted frequently in previous credit analysis?

2. Which ratios led to a good result in preceding studies?

3. Which ratios are defined, considering the cash flow?

Beaver suggested a ratio analysis methodology called the `cash flow model' (Beaver, 1997: 71-111). In particular, he insisted that the accumulation of the current asset influenced the increase and decrease of the cash-in flow and the cash-out flow. That is, the current asset can be a buffer against changes in flow and the enterprise's ability to pay could be defined on the probability by which asset is exhausted.

Franser, who was an advanced Managing Director of Standard & Poor's, criticized Altman for his ZETA model (Franser, 1976:205-239). He argued that prediction would be difficult if fundamentals and managers in the target enterprise are not analyzed. Phillips, an advanced executive of Moody's, stated that the disagreement in analysts' opinions arises as a result of the different weight that is put on risk factors i.e. variables. For the most part, these differences in opinion depend on the practical experiences which the analysts obtained (Phillips, 1975:371).

The possible occurrence of an insolvency situation is a serious threat to the various economic agents holding an interest in the insolvent organizations. The discriminant models based on book values of accounting data can be very efficient screening devices (Altman and Saunders, 1998:1771-1748). In fact, it is not possible to make an exhaustive financial analysis for each small firm that resorts daily to financial institutions for fund-raising purposes.

Moreover, as the number of inspected variables increases, it becomes more difficult to make a summary of the critical information, while the firm still has a good response and adjustment capacity (Houghton and Woodliff, 1987:537).

Initially research on insolvency prediction tried to control for industry effects by matching the firms in the samples by sectors, but authors like Platt and Platt (1990) demonstrate that this kind of adjustment cannot accommodate industry effects on insolvency, which tend to produce instability of coefficients of the discriminant functions (Platt and Platt, 1990:31-51).

Shirata developed a Sample Analysis Failure Model whose discrimination accuracy was the highest for bankruptcy data (Shirata, 1999). The regression analysis for data taken by a random-sampling was carried out with 686 bankruptcy data and 300 non-bankruptcy data. Then she selected variables with the stern statistics test and focused on her explanatory variables based on common knowledge of financial accounting and techniques of data mining. Recent major studies (Altman vd., 1997; Coats and Fant, 1993; Chorafas and Steinman, 1991, Caouette vd., 1998) did not focus on the experiential subjectivity of credit analysts, but on objective pattern-learning from data emphasizing accuracy, for example with cutting edge techniques(Shingo, 2002).

Nevertheless, since the seminal works of Altman (1968), research began to concentrate on publicly traded firms and the asset-size was considered an important issue in sample selection. Small firms and very large firms were eliminated from the sample. The latter were eliminated due to the rarity of bankruptcy in this type of firm and for the small firms the argument was the lack of reliable and comprehensive information (Pindado, 2004: 51-66). However, since the work of Edmister (1972) researchers began to be interested in small sized companies. This author built the first discriminant function for insolvency prediction in small businesses. His seven-variable discriminant model could not work well on validation samples. Some possible causes

of those results were pointed out, namely the existence of high levels of multicollinearity between financial ratios, which requires a strict control on the selection of the variables for the models (Edmister, 1972:1477-1493).

Keasey and Watson (1986, 1987) continued to recognise difficulties in the extension of this type of models to small firms (Keasey and Watson 1986:49-57, 1987:335-353). Nevertheless, the popularity of bankruptcy prediction models has been disseminated from the United States, overcoming some imperfection of the models. Currently there are countless credit institutions that have been incorporating these models in their risk analysis procedures.

Taking into account that the majority of the Z-score's results showed a realistic figures on companies going concern with their operations, the goal of this paper is the usage of Altman's bankruptcy prediction model to Kazakhstan market. The model is built based on financial variables which are derived from financial statements of companies listed on Kazakhstan Stock Exchange (KASE)

Owing to the fact that in the Republic of Kazakhstan and post Soviet Region, CIS countries, it is really hard to find a reliable data that could be used in researches like this. Maybe that is why there has not been provided researches before in the Republic of Kazakhstan. Most of the data we used in this work basically is taken from financial statements made in accordance with International Financial Reporting Standards, which is in Kazakhstan, Audited Financial Data by one of the internationally accepted Auditing companies. Unfortunately not many companies use this way of Data Storage. In the country as a whole there exists also a problem of Statistical performance shortage. We imply that the government of the Republic of Kazakhstan could apply a program, or so called electronic data base that could store all the Audited information of the companies operating in Kazakhstan, and make data available to anyone who is concerned with the company performance. Unlike KASE, this program facilitates the users access to financial data, and automatically generates financial ratios of not only emitters, but also of all the companies acting within the borders of RK.

2. COMPARATIVE ANALYSIS

To make a clear conclusion about the possibility of bankruptcy in the near future the best is to compare the analyzed company with another of the same industry. In this paper we reviewed the financial position of JSC "AlmatyKus" in comparison with JSC «Ust-Kamenogorsk Ptitsefabrika».

The main activity of JSC "Almaty Kus" - in 2008 has been rebranded to JSC "Alel Agro" and has gone through tough administrative and production reconstructions, is the production and sale of poultry products and consumer goods, wholesale and retail trade. The main economic performance of JSC "AlmatyKus" are shown in Table 1.

JSC "Ust-Kamenogorsk Ptitsefabrika" was originally founded as a state enterprise in 1976.\ Currently, the JSC "Ust-Kamenogorsk Ptitsefabrika" is the vertically integrated broiler enterprise engaged in breeding broiler chickens, broiler growing, processing and selling of chicken, chicken and chicken products cape wholesale buyers. The company employs 1198 people. The production capacity allows to produce 10,744 tons of products per year, which makes the company a leader in

Kazakhstan for the production of poultry meat, ranking first among the 8 largest rival poultry factories.

Table 1 : The Main Economic Performance and Key Financial Indicators of JSC "Almaty Kus" for the Period 2004 – 2006 ***(In Thousands Tenge)***

Indicators	2004	2005	2006
Sales	2 075 011	2 250 821	3 140 835
Total Production costs	1 711 501	2 401 754	2 824 107
Gross Income	363 510	-150 933	316 728
The average cost of fixed assets	2 721 570	3 034 172	4 595 254
Profitability of Products	21	6,3	11,2
Current Ratio	5,4	2,8	4,6
Quick Ratio	1,13	2,2	3,9
Absolute liquidity Ratio	0,62	0,03	0,007
Working Capital Ratio	0,43	0,54	0,46
Concentration ratio of equity capital	0,25	0,18	0,16
Coefficient of financial dependence	0,59	0,63	0,72

Source: Prepared by authors from data is from financial statements of JSC "AlmatyKus".

Table 2: Economic Performance and Key Financial Indicators of JSC "Ust-Kamenogorsk Ptitsefabrika" for the Period of 2004 – 2006*(In Thousands Tenge)*

Indicators	2004	2005	2006
Sales	1 458 352	1 749 137	1 960 806
Total production cost	1 136 387	1 283 094	1 597 947
Gross Income	321 965	466 043	362 859
Average cost of fixed assets	723 605	849 453	963 113
Profitability of Product	18	23	32
Current Ratio	1,8	1,52	1,97
Quick Ratio	0,8	0,38	0,63
Absolute liquidity Ratio	0,06	0,09	0,02
Working Capital Ratio	0,46	-0,5	-0,48
Concentration ratio of equity capital	0,63	0,67	0,6
Coefficient of financial dependence	0,34	0,32	0,39

Source: Prepared by authors from data is from financial statements of JSC "Ust-Kamenogorsk Ptitsefabrika".

From the above two tables the profitability of JSC "Almaty Kus" unlike JSC "Ust-Kamenogorsk Ptitsefabrika" declines every year, which is one of the negative phenomena in financial situation of the company. In addition to this, the JSC "Ust-

Kamenogorsk Ptitsefabrika" in comparison to JSC "Almaty Kus" shows low financial dependency ratio that is a small dependence on borrowed funds, which positively affects the financial viability of the company. The above indicators of profitability and leverage already show the poor financial position of JSC "Almaty Kus" in comparison to its peer for the period from 2004 to 2006. From the following table we can make the deeper financial analysis of JSC "Almaty Kus".

Examining the Table 3, we can say that the rate of independence in 2004 was 0.25 in 2005, 0.18 and 0.16 in 2006, which is less than the recommended value of 0,5-0,6. Dependency ratio for the period 2004-2006 is more than the recommended value, and year to year this value increases. Funding Ratio is less than the recommended value. However, the coefficient of financial stability over the 3 years is very close to normal. In the company it can be seen a rise in Accounts Receivables, which cannot be a good sign. As you can see from the calculation of the financial performance of Almaty Kus not all standarts stand up to their recommended value, and if we have a comparative review on the financial performance of "Ust-Kamenogorsk ptitsefabrika, one can see that such indicators as the current ratio, quick Ratio in our company Almaty Kus is not that bad.

Important Ratios are dependency Ratio and concentration of own capital has the tendency of decline, which is negative moment. Since, in international practice it is considered normal if the ratio of equity capital is more than 60%, in Kazakhstan, to manage a business, it must be at least 51%, in our case, this requirement is not achieved. Dependency ratio, which describes how the business owner depends on the Capital borrowed shows that in 2006 the company depends up to 72% on raising capital.

As the table shows performance of the capital structure has found financial stability, the essence of which is the provision of reserves and sources of cost. Qualitative criteria of business activity are: the breadth of markets, the reputation of the company, the availability of export products. Quantitative criteria are implementation plan for the main indicators and to ensure growth as well as efficient use of resources of the company, as material, labor, and financial.

The analysis of the coefficients showed that the JSC "Ust-Kamenogorsk Ptitsefabrika" is financially independent company from Debt capital. Thus, the results of financial performance shows that we have analyzed the company JSC "Almaty Kus", has recommended values of the coefficients, and inherent in this industry when compared to JSC "UKP", only the number of indicators such as investment coverage ratio (ratio of financial sustainability), accounts payable and maneuverability, the other fundamental indicators have different values and trends.

Concentration ratio of equity capital, in 2006, shows that the company only for 16% is not dependant on borrowed funds. The coefficient of financial dependence shows that from 2004-2006 the dependence of Capital increased to 84%. An important indicator - the rate of funding, indicating which part of activities financed by equity capital from 2004 to 2006, has a tendency to decline, suggesting that at the end of 2006, the company has only 19% financed through borrowings, this fact suggests precarious financial situation of the enterprise. Accordingly, the ratio of own and borrowed capital is growing every year, at the end of the year it was 4.5, which is 4,5 times more than

recommended. Ratio of reserves and costs of forming their own sources exceeds the standard 8 times, and ratio of accounts receivable and accounts payable as of 2006 is more than the recommended value at 4.2 times.

Table 3: Coefficients of Financial Stability in JSC "Almaty Kus" for 2004-2006

		2004	2005	2006	Recommended Value
1. Ratio of independence (concentration of equity)	Equity / Currency Balance	0,25	0,18	0,16	0,5-0,6
2. Dependency Ratio	Debt capital / Currency Balance	0,75	0,81	0,84	0,4-0,5
3. Ratio of financing	Equity / Debt capital	0,34	0,23	0,19	>1
4. Ratio of borrowed and own Funds	Total debt / Equity	0,78	3,4	4,5	<1
5. Coverage Ratio of investment (coefficients of financial stability)	Shareholders' equity + long-term liabilities / currency balance	0,85	0,81	0,87	≈0,9
6. Investment Coefficient	Owner's equity / book value of fixed assets	0,3	0,4	0,4	
7. Ratio of long-term borrowings	Long-term liabilities / shareholders' equity + Long-term liabilities	0,7	0,8	0,8	
8. Working Capital	Current assets – Current Liabilities	3928493	3297993	4074075	
9. Factor Mobility	Working capital / Currency Balance	0,53	0,34	0,45	
10.Ratio of reserves and cost of forming own sources	Working Capital / Inventory	23,6	11,4	6,3	>0,6-0,8
11. Current debt ratio	Current Liabilities / Debt capital	0,2	0,3	0,17	
12. Accounts Payable Ratio	Accounts Payable + Other liabilities / Debt capital	0,6	0,5	0,14	
13. The Ratio of AP and AR	Accounts Receivable / Accounts Payable	6,1	26,1	8,4	2
14. Ability to Pay interest on Loans	Net Income + Taxes + Interest on Loans / amount paid	1,27	1,72	1,68	

Source: Prepared by authors from data is from financial statements of JSC "AlmatyKus".

Consequently, according to estimates of financial indicators, there is a contradiction in values of coefficients. The coefficient of financial stability, primarily characterizing the activities of the company, consistent with the recommended values from 2004 to 2006, although all of the following figures show the structure of a poor balance. So, in order to identify the factors affecting the financial position of the JSC "AlmatyKus" there is a need for rapid analysis of financial reporting based on an analytical balance.

3. THE ANALYSIS OF FINANCIAL STABILITY AND SOLVENCY

As we can see from financial statements of JSC "AlmatyKus" , in 2004 non-current assets amounted to 31.76%, current 68.24% of currency balance, most of which is comprised of accounts receivables 56.60%. As for liability, it took 59.45% long-term

loans and 20.51% capital and reserves, it means that the accounts receivable and long-term commitment is about the same size, although in our practice, it is desirable that the commitments exceeded.

Table 4: Coefficients of Financial Stability in JSC "UKP" for 2004-2006

		2004	2005	2006	Recommended Value
1. Ratio of independence (concentration of equity)	Equity / Currency Balance	0,63	0,67	0,6	0,5-0,6
2. Dependency Ratio	Debt capital / Currency Balance	0,34	0,32	0,39	0,4-0,5
3. Ratio of financing	Equity / Debt capital	1,94	2	1,54	>1
4. Ratio of borrowed and own Funds	Total debt / Equity	0,43	0,48	0,64	<1
5. Coverage Ratio of investment (coefficients of financial stability)	Shareholders' equity + long-term liabilities / currency balance	0,79	0,8	0,83	≈0,9,
6. Investment Coefficient	Owner's equity / book value of fixed assets	0,91	0,93	0,90	
7. Ratio of long-term borrowings	Long-term liabilities / shareholders' equity + Long-term liabilities	0,2	0,18	0,28	
8. Working Capital	Current assets – Current Liabilities	152487	185235	344262	
9. Factor Mobility	Working Capital / Currency Balance	0,12	0,14	0,26	
10.Ratio of reserves and cost of forming own sources	Working Capital / Inventory	0,6	0,46	0,72	>0,6-0,8
11. Current debt ratio	Current Liabilities / Debt capital	0,45	0,55	0,41	
12. Accounts Payable Ratio	Accounts Payable + Other liabilities / Debt capital	0,21	0,23	0,2	
13. The Ratio of AP and AR	Accounts Receivable / Accounts Payable	1,3	1,14	1,6	2
14. Ability to Pay interest on Loans	Net Income + Taxes + Interest on Loans / amount paid	4,8	5,97	2,3	

Source: Prepared by authors from data is from financial statements of JSC "Ust-Kamenogorsk Ptitsefabrika".

In 2004, a 16% increase in non-current assets, mainly due to the additional attraction of fixed assets by 99%. Current assets decreased by 15.74% on the contrary, mainly due to the reduction of accounts receivable to 40.36%, accounts payable and long-term loans, in turn, increased by 18% and 3.5%, respectively, the value of the property from 2004 to 2005 has increased to 2310643 thousand KZT in consequence of the acquisition of fixed assets at the expense of long-term bank loans. In 2006, there has been a decline in the share of fixed assets at the expense of construction, on the other hand, accounts receivable increased again by 7% and reached 48% of the total current liabilities. Long-term liabilities reached its maximum value for 3 years and amounted to 72% of the currency balance.

Table 5: Income and Expenditure Statements of JSC "Almaty Kus" for the Period 2004 – 2006*(In Thousands Tenge)*

	2004		2005		2006	
Indicators of balance	Income	Expense	Income	Expense	Income	Expense
Income from operatios	2075011		2250821		3140835	
COGS		1711501		2401754		2824107
Gross Income	363510			150933	316728	
Total Expenses in Period		777543		667208		1019876
Including general and administrative		302682		160612		279387
Sales expenses		73103		36428		127809
Interest Expenses		401758		470168		612680
Income (loss) from primary operations		-414033		818141		-703148
Income (loss) from secondary operations	477353	64494	480065		347861	
Income (loss) from ordinary activities before taxation	109507			338076	0	-355287
The cost of Income Tax				0		0
Income (loss) from ordinary activities after taxation	109507		0	338076	0	-355287
Income (loss) on emergency and closed operations				0		0
Net Income (loss)	109507		0	338076	0	355287

Source: Prepared by authors from data is from financial statements of JSC "AlmatyKus".

Analyzing the data obtained it can be concluded that the company in 2005 is not able to cover the long-term commitment with its own funds, since the large portion of the company's assets are in accounts receivable, which in turn increases each year. Therefore, there is a question of funding the activities financed by the company and under what conditions the company is provides by bank credits.

Table 5 shows that the activities of the company during the past two years, in 2005 and 2006 was in loss, and loss in 2006 has increased compared to the previous year to 17.211 thousands KZT. With regard to 2004, as seen from financial statements of JSC "AlmatyKus" financial results the company are positive and net income of 109.507 thousands KZT. If you conduct a simple mathematical computation of net income, we get:

(2075011 - 1711501) - 777543 + 477353 - 64494 = - 1174

Thus, in 2004, the company's activities must also be in loss, and net income is equal to -1174, which is contrary to official data in financial statements. So, the company for 3 years has a negative net income or loss, which demonstrates the precarious financial situation of enterprises in the future could lead to bankruptcy. Another equally important point is that from 2004 to 2006, income from operations is negative and by the end of the reporting period, it reached the highest value -703.148

thousands of KZT. Also it is interesting that the production cost is 82% in 2006 and 89% in 2004 from the total revenues. And in 2004, cost of sales exceeded revenue from operations at 150,933 thousand KZT, which is 106.7%. Thus, one can conclude of what we have analyzed, the company poorly organized its financial managers, and if it continues to adhere to existing policies, in the near future, it will face bankruptcy. First of all, in this case we have to analyze if the company's investments earn any profit. To do this we compare the growth rates of assets and the rate of growth of net profit, as follows:

Table 6: Dynamics of Net Income and Assets of JSC "Almaty Kus" for the Period 2003 – 2006

Years	Balance currency (value)		Net Income	
	Thsnd.KZT	in % in 2003	Thsnd.KZT	in % in 2003
2003	6272282		137734	
2004	7415683	118,23	-1174	-0,85
2005	9726327	155,	-338076	-245,4
2006	9059327	144,4	-355287	-257,9

Source: Prepared by authors from Data is from financial statements of JSC "AlmatyKus".

As you can see from calculations, the rate of growth of disposable income, many times behind to outpace the growth of assets, it is said that the capital invested in assets brings only loss and at the end of 2006, reaches its maximum value. According to that, this type of business is unprofitable. Based on the above calculations it follows that JSC "Almaty Kus" is financially unstable enterprise, loss-making activities from 2004 to 2006 indicates an inefficient use of capital, and if this trend goes on, the company will not be able to cover all its obligations by the next year. One of the interesting points that contradict the above, is that we have calculated the coefficient of financial stability for three years in line with standard 0.9 and represented a perfect balance of structure. Therefore, I would like to find out the reasons due to which the company bears the major financial indicators, which are usually blamed on the financial sustainability of the enterprise.

The external symptom of the financial stability of the enterprise is its capacity to pay. The company is considered solvent if there's cash availability, short-term investments (securities, temporary financial assistance to other businesses) and intensive transactions (accounts receivable) cover its current liabilities. Solvency of the enterprise can be expressed as the following inequality:

$$S \geq A + C$$

where: A - short – term debts

S - receivables, short-term investments, cash and other assets.

C - accounts payable

Table 7: The Analysis of Solvency and Financial Stability of JSC "Almaty Kus"

Balance indicators	Beginning	End	In % at the beginning	In % at the end
Accounts Receivable	3925345	4329761	81,49	95,43
Short term investments	828850	200000	17,2	4,41
Cash	62948	7531	1,31	0,17
Total	4.817.143	4537292	100,00	100,00
Short term debts	154049	561712	8,52	50,43
Accounts payable	1654220	552048	91,5	49,57
Total	1.808.269	1113760	100	100,00

Source: Prepared by authors from data is from financial statements of JSC "AlmatyKus".

In Table 7 we see that at the beginning of 2006, accounts receivable, short-term investments and cash account equals 4817143 thousand KZT, which is higher than short-term borrowings, accounts payable at 4817143 - 1808269 = 3008874 thousand KZT at the end of the period 4537292 - 1113760 = 3423532. It follows that these values fully satisfy our inequality and it follows that the company is solvent and by the end of 2006 compared to 2005 the situation has improved.

As you can see from this table, at the beginning of 2006, 81.49% is the accounts receivable and only 17.2% and 1.31% short-term investments and the money, but at the end of the reporting period, this ratio has changed.

As you can see from the table above, Accounts receivable is now 95,43 %. Thus we can conclude that we cannot judge about the company situation from typical financial statements, because it implies that a company is solvent one, but when we look at the cost of which it is performed it is almost 96% of Accounts receivable.

Now let's calculate the ratio of financial solvency:

$$Solvency = \frac{Cash + Short\ Term\ Investments}{Short\ Term\ Payables}$$

The table shows that on 31.12.2006, the company can payout only 19% of its debt, which is 30% less than the previous year. It is considered normal, if the solvency ratio is equal to 1, if it is as in our case is less than 1, it means that the owner is unable to expand their business in a timely manner to settle with creditors, staff salaries and the fiscal authorities. The economic matter of financial stability of the enterprise is the availability of reserves and sources of cost.

As can be seen from Table 9 its own working capital increased to 1131368 thousand tenge, compared with last year, primarily due to growth of bank loans and credits, as well as reduced long-term assets in the form of unfinished construction.

Table 8: Solvency Coefficient and Financial Stability for Almaty Kus in 2006 (Thousands)

Balance Indicators	Period Beginning	Period End	Cahnges on Period End	In % Period End
Short term investments	828850	200000	-628850	-75,9
Cash	62948	7531	-55417	-88
Short term payables	1808269	1113760	-694509	-38,4
Solvency Coefficient	0,49	0,19	-0,3	-61,22

Source: Prepared by authors from data is from financial statements of JSC "AlmatyKus".

Thus by the end of the year, the total value of the main sources of the formation of reserves and expenses increased to 4970759 thousand tenge, which more than the previous year to 1539031 thousand tenge or 31%. Accordingly, in the year under review has its own capital in surplus in the amount of 769,945 thousand tenge.

Table 9: Financial Stability Analysis of JSC "Almatykus"

Financial indicators	Period beginning	Period ending	Changes during Period
Capital and reserves	1779762	1779762	0
Non – current assets	4620064	3871492	-748572
Long term debts	6117981	6500777	382796
Availability of working capital	3277679,00	4409047,00	1131368,00
Short term debts	154049	561712	407663
Total value of main sources of formation of reserves and costs (4+5)	3431728,00	4970759,00	1539031,00
Stocks	289120	650543	361423
Surplus (+) or loss (-) working capital	2988559,00	3758504,00	769945,00

Source: Prepared by authors from data is from financial statements of JSC "AlmatyKus".

In the process of business relationship with the credit system and other companies there is a constant need to analyze their creditworthiness. In analyzing the creditworthiness of the calculations are carried out to determine the liquidity of the assets of the company and its balance sheet. The obligations of the company are grouped into four groups and placed on the urgency of the payment. The assets of the company depending on the speed of turning them into money are divided into four groups:

Table 10: Assets Structure of JSC Almaty Kus for 2004 – 2006

Terms of liquidity:		2004	2005	2006
1 Part A (most liquid assets) ≥ 1 Part P (most urgent obligations)				
Short term investments + Cash				
207531<1117338		334200	828850	200000
891798<1811847	A	362213	62948	7531
696413<1127949		696413	891798	207531
	P	1127949	1811847	1117338
2 Part A (Fast realized assets) ≥ 2 Part P (Short term obligations)				
Accounts receivable				
Short term obligations	A	5397535	3925345	4329761
4329761>0	P	0	0	0
3925345>0				
5397535>0				
3 Part A (Slow realized assets) ≥ 3 Part P (Long term obligations)				
Inventory				
Long Term obligations	A	166488	289120	650543
650543<6497199	P	4408587	6114403	6497199
289120<6114403				
166488<4408587				
4 Part A (Hardly realized) ≤ 4 Part P Equity and Debts				
Net value of assets minus unfinished buildings				
3.871.492<1444790	A	1155247	4620064	3871492
4.620.064<1800077	P	1879147	1800077	1444790
1.1552.47<1.879.147				

Source: Prepared by authors from data is from financial statements of JSC "AlmatyKus".

The data shows that in this company for last three years the balance was non-liquid, since it has not performed 1st and 3rd terms of liquidity.

Table 11: The Structure of Assets and Liabilities on the Balance of The "Almaty Kus" Liquidity in 2006 (Thousands)

Assets		Liabilities		Paying the excess or shortage
More liquid assets	207531	Most urgent obligations	1117338	-909807
Fast realized assets	4329761	Short run assets	0	4329761
Slow realized assets	650543	Long term assets	6497199	-5846656
Hard realized assets	3871492	Permanent assets	1444790	2426702
Balance	8667628	Balance	8667628	X

Source: Prepared by authors from data is from financial statements of JSC "AlmatyKus".

As can be seen from Table 11 in 2006, the company has the most lack of liquidity in the amount of 909.807 thousand tenge to cover accounts payable and payments to the budget, as well as lack of inventory in the amount of 5846656 thousand tenge, with the possible implementation of which, it is impossible to cover all long-term loans.

Thus, it can be concluded that at the end of 2006 has absolutely illiquid balance sheet because of the lack of the most liquid assets to meet immediate obligations, as well as Inventory, in the case of their realization are insufficient to cover long-term commitment. Although, if you consider the individual factors, they are contrary to fact, because of their calculations suggest that the balance of the company completely eliminate.

Further on let's take an analysis of turnover of working capital, including an anlysis of turnover:

- Assets of the company
- Receivables
- Stock

From the calculations it follows that the time of the assets at the end of the reporting period decreased and the speed of traffic on the contrary increased by 0.02 point, this positive trend is the company's activities, although if you consider the recommended rate of turnover of assets, the market of Kazakhstan is considered to be normal at least 4 times a year, in our case, this figure was 0.09 in 2006. This suggests that the company has substantial share of fixed assets and accounts receivable. This company is anticipating a positive velocity of turnover of mobile over the turnover of all assets.

Table 12: Assets Turnover Analysis for JSC Almaty Kus for 2005 – 2006

	Indicators	2005	2006	Changes
1	Revenue	2250821,00	3140835,00	890014,00
2	Average assets	7899370,62	9166632,00	1267261,38
3	Assets turnover (2x360/1)	1263,438285	1050,672041	-212,77
4	Average value of mobile assets	5083349,00	5147049,00	63700,00
5	Speed (asset turnover) (½)	0,07	0,09	0,02
6	Speed (mobile assets turnover) (1/4)	0,44	0,61	0,17

Source: Prepared by authors from Data is from financial statements of JSC "AlmatyKus".

Table 13: Analysis of Accounts Receivable Turnover of JSC "Almatykus" for 2005 – 2006

Indicators	2005	2006	Changes
Revenue	2250821	3140835	890014
Accounts receivable	3924708	4329761	405053
Average value of accounts receivable	1962354	4127553	2367407
Speed (Acc/Rec)	1,15	0,73	-0,42
DSO	313,0,4	493	182,41
Accounts receivables share	76,86	83,46	6,6

Source: Prepared by authors from data is from financial statements of JSC "AlmatyKus".

The rate of turnover of accounts receivable is the multiplicity of the excess revenue over the average receivables, in our case, in 2006, compared with the previous situation has changed for the worse, since the figure is 0.73, this indicates that the revenues cover the receivable 73%. To repay the debt the company needed 493 days or 1 year and 4.5 months if earnings remain unchanged. And as you can see, the percentage of receivables in 2006 reached its maximum value and amounted to 83% of total assets.

Table 14: Inventory Turnover Analysis of JSC "Almatykus" for 2005 – 2006

Indicators	2005	2006	Changes
COGS	2401754	2824107	422353
Average stock	227804	469832	242028
Stock turnover	11	6	-5

Source: Prepared by authors from data is from financial statements of JSC "AlmatyKus".

From the above table we can see that in 2006 compared to the previous year an increase in cost of production at 422.353 thousands tenge and turnover of stocks, in turn, decreased by 5 points and was 6 units. It can be concluded that the increase in

production costs, reduces the rate of inventory turnover, so the question arises, what happens at the expense of growth in production costs from year to year.

Table 15: Profitability Indicators for JSC "Almatykus"

Indicators	2004	2005	2006
Net Income	-1174	-338076	-355287
Revenue	2075011	2250821	3140835
Equity	1444790	1800077	1879147
Average assets	6068934	7899371	9166632
The average value of immobilized funds	2220098	3487656	4245778
The average value of mobilized funds	4623885	5083349	5147049
ROA	-0,019	-4,28	-3,87
Return on immobilized funds	-0,053	-9,6935	-8,368
Return on mobilized funds	-0,0254	-6,6507	-6,9
Return on sales	-0,06	-15,02	-11,312
Return on Equity	-0,08	-17,78	-19,907

Source: Prepared by authors from data is from financial statements of JSC "AlmatyKus".

As can be seen from this table, as a result of negative net income, return on financial activities of the company also has a negative value.

Thus, from a financial analysis of the company "Almaty Kus" it can be concluded that at the end of 2006 the company is in a precarious financial position, key financial indicators do not stand up to their recommended values, although it was clear from the calculations, some factors in excess of the opposite standard several times. Analysis of the creditworthiness and solvency showed that the balance at the end of 2006, non-liquids, and the company cannot cover all of its obligations as to the profitability, then for three years, there have been loss-making activities, the net income is negative.

Therefore, in this work, we would like to assess the likelihood of bankruptcy based on the model of Dr. Altman, because of a conflict between financial ratios and financial performance of the company.

4. EMPIRICAL RESULTS

Applying the Altman model for Kazakhstani companies is possible with some exceptions:

- The model is constructed according to the data of US companies in late 60's.
- Altman model is implemented for large companies, whose shares are traded in Stock Exchanges.

Therefore the synthetic application of this model should be considered on an example of two companies in the same industry: JSC "AlmatyKus" and JSC

"UstKamenogorskPtitsefabrika". As we have previously reviewed the financial situation of companies, we will be able to see the correctness of the assessment criteria for Z-score model having the data of given companies above.

The analysis of the probability of bankruptcy of JSC "AlmatyKus" using the Altman's Z-score model is showed the following formula (Altman, 1968: 589-609)

$Z = 1{,}2X_1 + 1{,}4X_2 + 3{,}3X_3 + 0{,}6X_4 + 1{,}0X_5$,where:

X_1 - Assets turnover Ratio;

X_2 - Return on Assets (Retained earnings in numerator)

X_3 - Return on Assets (EBIT in numerator)

X_4 - Debt to Equity Ratio

X_5 - Return on Assets (Sales in numerator)

To do this we'll calculate all necessary ratios for JSC "AlmatyKus" for three years and make a table of all calculations.

Table 16: Bankruptcy Probability Calculation for "Almaty Kus" for 2004-2006.

	Formulas	2004	2005	2006
X_1	Working capital ÷ total assets	0,53	0,34	0,45
X_2	Retained earnings ÷ total assets	0,33	0,002	-0,037
X_3	(earnings before interest and taxes) ÷ total assets	0,015	0,034	0,04
X_4	(stock price * outstanding shares) ÷ total liabilities	1,3	0,3	0,45
X_5	Sales ÷ total assets	0,3	0,23	0,4
Z	$1{,}2 \times K_1 + 1{,}4K_2 + 3{,}3K_3 + 0{,}6K_4 + 1{,}0K_5$	1,54	0,046	0,8942

Source: Prepared by authors from data is from financial statements of JSC "AlmatyKus".

Working capital to total assets (WC/TA) is a ratio that is a good test for corporate distress. A firm with negative working capital is likely to experience problems meeting its short-term obligations - because there are simply not enough current assets to cover them. By contrast, a firm with significantly positive working capital rarely has trouble paying its bills. For JSC "Almaty Kus" in 2004 the WC/TA ratio was equal to 0.53, later in 2005 this ratio dropped dramatically to 0.34. However, in 2006 it began to improve mainly due to WC increase.

Retained earnings over total assets (RE/TA) ratio measures the amount of reinvested earnings or losses, which reflects the extent of the company's leverage. Companies with low RE/TA are financing capital expenditure through borrowings rather than through retained earnings. Companies with high RE/TA ratio suggest a history of profitability and the ability to stand up to a bad year of losses. For JSC "Almaty Kus" this ratio is low and even negative in 2006. This might be explained by the fact that that company's profitability decreased and it started to generate lower revenue in 2006 in comparison to 2004.

Earnings before interest and tax to total assets (EBIT/TA) ratio is a version of return on assets (ROA), an effective way of assessing a firm's ability to squeeze profits from its assets before factors like interest and tax are deducted. In overall, JSC "Almaty Kus" experienced an increase in the ratio for the period from 2004 to 2006. In terms of efficiency starting from 2004 it seems to be that JSC "Almaty Kus" generated higher income per unit of sales. However, actually the company didn't increase its asset base.

Market value of equity to total liabilities (ME/TL) is a ratio that shows - if a firm were to become insolvent - how much the company's market value would decline before liabilities exceed assets on the financial statements. The ratio for JSC "Almaty Kus" in 2005 and 2006 was relatively low comparatively to 2004. This can be explained by JSC "Almaty Kus's" performance that was greeted by investors in the market and stock price increased dramatically in 2004. In addition, the capital structure has changed, company became more leveraged.

Sales to total assets (S/TA) tells the investors how well management handles competition and how efficiently the firm uses assets to generate sales. Failure to grow market share translates into a low or falling S/TA. For JSC "Almaty Kus" this ratio was low for the period from 2004 to 2006. We would like to highlight that it's utilization of assets to generate revenue is low compared to JSC "UstKamenogorskPtitsefabrika", which generates three times higher revenue.

Analyzing the Z indicators of Almaty Kus for three years we can say that Z-score for 2004 is 1.54, in 2005 it is 0.046, and in 2006 it is 0.8942. The financial condition in general is worsening, and in 2005 the value of Z is rather low, showing that the company probably faced serious problems.

Below is shown the table where we can asses the likelihood of bankruptcy for three years JSC"UstKamenogorskPtitsefabrika".

Table 17: Bankruptcy Probability Calculation for JSC " UKP" for 2004 – 2006

	Formulas	2004	2005	2006
X1	Working capital ÷ total assets	0,08	0,09	0,16
X2	Retained earnings ÷ total assets	0,35	0,21	0,22
X3	(earnings before interest and taxes) ÷ total assets	0,25	0,12	0,05
X4	(stock price * outstanding shares) ÷ total liabilities	5,04	4,13	3,09
X5	Sales ÷ total assets	0,8	0,89	0,89
Z	$1{,}2 \times K_1 + 1{,}4K_2 + 3{,}3K_3 + 0{,}6K_4 + 1{,}0K_5$	7,2	4,166	3,4

Source: Prepared by authors from data is from financial statements of JSC "Ust-Kamenogorsk Ptitsefabrika".

According to the calculations in table 17 applying the Altman's model, JSC "UKP" is a sustainable business entity. And Altman's five factorial model showed that the three year value for Z is higher than 3, indicating a very low and unlikely probability of bankruptcy.

In 2004 there was a very low bankruptcy probability, and by year 2006 it gradually increased. The results of calculations on the model of Altman confirm that the threat to financial stability of JSC "Ust-Kamenogorsk Ptitsefabrika" is still low by the end of 2006. Coming back to JSC "AlmatyKus" that we are actually analyzing, the value of Z is less than 1.81 for three years, which means that the company is in risk of bankruptcy. Thus, the probability of bankruptcy on the basis of this model reflects the real financial strength of enterprises for the period of time.

According to the methods of evaluating the potential bankruptcy in Kazakhstan indicators such as current ratio and liquidity ratio of own working capital are used. As can be seen from the calculations of financial ratios, the application of these criteria did not immediately determine the probability of bankruptcy of the enterprise; on the contrary, it shows that JSC "AlmatyKus" is in a better position than JSC"UstKamenogorskPtitsefabrika". The application of this method for predicting the likelihood of bankruptcy is inefficient, since the individual coefficients can not create a complete picture of the financial situation of the company. These indicators can be used directly in determining the extent of potential bankruptcy.

If the company does not completely change the financial strategy for the development of businesses in the near future the organization will not be able to refinance itself issuing bonds and attracting bank loans. Therefore, it is necessary that the company starts "anti-crisis" events to avoid the likelihood of insolvency or bankruptcy in JSC «Almaty Kus».

The above analysis show that possible causes are:

- Misguided policies in capital structure, i.e. a firm prefers to finance its assets at the expense of long-term loans and issuing bonds, which leads to high interest payments and the possibility of financial insolvency;
- Large amounts of accounts receivable, this calls for increasing funding, leading to an increase in firm commitments;
- The share of COGS in the company's revenue is growing, and in 2005 exceeded revenues, reflecting the unsustainable management of variable and fixed costs, operating inefficiencies and the possibility of low-skilled employees.
- The company's main business is unprofitable, but at the same time, its non-core activities are profitable, which shows the wrong strategic choice in the range of products and services;
- One of the options can be the life-cycle of company, i.e. the company is at a stage of development when it is necessary to apply new technology and equipment to improve productivity, but this requires investment, and the company is losing money, until the above investments are not fully realized (installation of equipment, increase capacity), and justified;

We also cannot ignore the fact that company is working in the agricultural sector, the condition of which, is also not encouraging which definitely plays a role in relation to sales, demand, etc.

Now that we have looked through main probable critical points for bankruptcy, now we can look for a way to get out of it.

We can see that a company for three years has a huge amount of Accounts Receivables and loans, of what we understand that a company has led a policy to finance its long term investments through long term credits and by issuing bonds. In addition to this, the status of accounts receivable also requires attention, as it reflects the effectiveness of the chosen policy of collecting debt and identification of bad debt accounts. As a ratio for receivables we usually take average period of accounts receivable turnover or in other words, DSO. In our case this figure is 493 days. The figure shows that the DSO has significant shortcomings, to be precise:

- The average period of payments depends on the time taken for the foundation, so it is hard for manager to track changes in the payment discipline of customers in a prompt manner;
- The average period of payments does not say anything about the distribution of accounts receivable.

Table 18: Cogs In Both Companies for 2005 – 2006

Expenses	JSC "UstKamenogorskPtitsefabrika"		JSC “Almaty Kus”	
	2006	2005	2006	2005
Stern	915915	654738	1756333	991307
Wages and taxes	198150	212852	62736	68949
Materials	118517	78177	179463	1156043
Petrol	89645	73545	58506	14598
Vet clinics	75167	70105	70664	70456
Amortization	53034	47617	17500	17500
Electricity	49810	32944	71679	28414
One day chick	27090	27793	26456	20487
Rest	70646	85323	580770	34000
Total	1597974	1283094	2824107	2401754

Source: Prepared by authors from data is from financial statements of both companies.

As we can see from table 18 that most of costs in COGS occupy stern this is actually typical of this industry at all. In JSC “Ust-Kamenogorsk Ptitsefabrika” the figure is 57% and 51% in JSC “Almaty Kus” it is 62 % and 41%. Every year, fixed and variable costs increase, thus stimulating the growth of prices of products. It is therefore interesting that the JSC «Ust-Kamenogorsk Ptitsefabrika» is a leader in the production and implementation of poultry products in Kazakhstan and, accordingly, the volume of production is as many times should exceed output of JSC “Almaty Kus”, but as can be seen from table 22 the cost of production for 2005 and 2006, is contrary to this report. Therefore, it is of mismanagement of JSC “Almaty Kus” variable and fixed costs, it could be due to operating inefficiency or low-skilled employees, as well as the application of new technologies and equipment to improve productivity, but this requires investment, and the company is losing money to as long as these investments

are fully implemented (the installation of equipment, increase capacity), and clear. Thus, the formation of the institute of bankruptcy is not only the emergence of the use of bankruptcy procedures, but also the choice of the best methods and techniques for diagnosis of a possible bankruptcy and application of anti-crisis measures.

Diagnosis of the financial condition of a mechanism for crisis management, and therefore is one of the areas of regulation of bankruptcies.

Having analyzed the previous years let us go through current situation for both companies. Almaty Kus has gone through major reconstructions, both in financial and managerial aspects. In 2007 they re-branded the company, named it "AlelAgro" and reconsidered financial structure.

When it comes to UstKamenogorskPtitsefabrika, we will try to go further with Altman model, which we couldn't perform for Almaty Kus due to lack of information after 2006. Because of the fact that we got financial data mainly from KASE lists, we were able to consider only the data given there. Parenthetically, while doing the calculation for 2007 – 2008 years for UKP, we again used KASE data and as we did before we apply Audited data, which unfortunately we cannot have for 2008.

As you can see from the data below, in 2007 UKP was closer to bankruptcy risk and as it is seen in 2008 the non - completed year the company's situation is worsening, but again it is due to the fact that we do not have enough information on the 2008 data. So, when you look at the trend, given company is doing worse from year to year.

Having applied Altman's Z – score model to the Kazakhstani Market, we saw that there are insufficiencies occurring during the procedures, due to the lack of information. And as the model was first introduced and applied in United Kingdom, to have a better understanding of the actual depth of the model and it's privileges and shortcomings the author gives a numerical comparison of the work could be done in the Republic of Kazakhstan ideally. To do that, the following work has been completed taking into consideration the main factors that the author has excluded from the paper when applying to Kazakhstan.

Overall, previous empirical research found that a company is more likely to fail if it is unprofitable, highly leveraged, and suffers cash flow difficulties. Creditors will choose to liquidate a firm if the firm's liquidation value exceeds its going-concern value. Profitable companies are less likely to go bankrupt than unprofitable companies, due to the fact that profitable companies have higher going concern value. A company is more likely to enter bankruptcy when leverage is high, due to the increased risk of defaulting on the debts servicing. However, this is less likely to occur if the company has access to internal or external finance. A company with healthy cash flow has relatively easy access to internal finance, and therefore it is less likely to go bankrupt. In addition, large companies are less likely to face credit constraints in the market for external finance due to reputation effects, whereas the latter normally builds up through time. Consequently, company size and age are found to be important determinants in a corporate success.

Table 19: Bankruptcy Probability Calculation for JSC " UKP" for 2007 – 2008

Data Inputs:	2007 year completed		2008 noncompleted	
Current Assets:	1 833 148,00		1 292 383,00	
Total Assets:	3 961 175,00		4 178 489,00	
Current Liabilities:	802 283,00		1 391 366,00	
Total Liabilities:	1 114 093,00		2 209 098,00	
Retained Earnings:	2 331 618,00		1 453 927,00	
Sales:	2 878 892,00		2 606 467,00	
EBIT*:	1 144 820,00		97 056,00	
Share Price:	14,32		14,32	
Shares Outstanding:	16 620,00		16 620,00	
Component ratios:		Coefficients:		Coefficients:
X1	0,260242226	1,200	-0,023688707	1,200
X2	0,588617771	1,400	0,347955206	1,400
X3	0,289010205	3,300	0,023227535	3,300
X4	0,213580015	0,600	0,107712741	0,600
X5	0,726777282	0,999	0,623782185	0,999
Z-score	2,944287742		1,223147754	

Source: Prepared by authors from data is from financial statements of JSC "Ust-Kamenogorsk Ptitsefabrika".

Most of the studies show quite impressive ex-post (within-sample) classification results one year prior to a firm's failure. However, when applying certain corporate failure models to ex-ante (out-of-sample) classification, the results are more disappointing, being 10 or more percentage points lower than the model's ex post results. The goal of this paper is to improve the efficiency of the bankruptcy prediction models for the Republic of Kazakhstan, building on the following areas of weakness identified from the relevant literature, which may be further used in better classifications. The improvements are twofold: in terms of the financial variables employed to take account of industry effects, and in application of a business cycle effects through inclusion of macroeconomic variables in the proposed models.

5. CONCLUSION

The results of calculations on the model of Altman confirm the financial stability of JSC "Ust-Kamenogorsk Ptitsefabrika" at the end of 2006. When it comes to the company that the authors has been trying to analyze JSC "Almaty Kus", because the information value of Z has been less than 1.81 for three years, the probability of

bankruptcy is very high. Therefore, the probability of bankruptcy on the basis of this model reflects the real financial strength of enterprises for the taken period of time.

If the company does not completely change the financial strategy for the business development in the near future the organization will not be able to finance itself by issuing bonds and attracting bank loans. Therefore, it is necessary to keep up with anti - crisis events to avoid the likelihood of insolvency and bankruptcy of JSC "Almaty Kus". In reference to the objectives and tasks assigned to work, we got the following main research findings:

1. At all stages of crisis management financial instruments play a critical role, but there has been a weak job done in financial works.
2. The efficiency of financial restructuring is determined on the basis of criteria, adequately reflected in the positive momentum of financial recovery and is not contrary to the concept of maximizing market value. To monitor the financial situation in short-term, we propose a financial recovery based on differential rate of assessment of the effectiveness of financial restructuring, changes in financial results, with change in the value of net assets, as well as the likelihood of implementation of the restructuring options under multiple approach.
3. An analysis of the adequacy of the application of discriminant models in Kazakhstan showed that they have a different proportion in predicting the likelihood of bankruptcy for various periods of time. For a more accurate assessment of the likelihood of the threat of bankruptcy, especially when the value of Z - score in the zone of ignorance, we have proposed a score value of Z - score not only the position of the border, but also in terms of its dynamics. Investigation of an improved model of Altman confirmed the high proportion of the probability of bankruptcy in the coming year - 85%. Enhanced five – factorial Altman model we have adapted to the local accounting standards. It has the greatest chance - 88%.
4. Solution to the crisis for an insolvent company must be accompanied by a business reform. Financial restructuring is a necessary and key element in the successful recovery for an insolvent company whose primary objective is to maximize the value of the company. To select a financial restructuring strategy, as part of integrated anti-crisis strategies in a particular company paper, a methodological approach is a matrix relationship of insolvency, with possible variants of financial recovery business.

Given its shortcomings, the Z is probably better used as a gauge of relative financial health rather than as a predictor. Arguably, it's best to use the model as a quick check of financial health, but if the score indicates a problem, it's a good idea to conduct a more detailed analysis.

Due to the statistically insufficient information on other industry groups, analysis could not have been performed for retail and other industries. Separate models can be developed for each of the individual industries in a future research, as the industry-specific approach is the most effective in bankruptcy predictions.

Because of tough competition, enterprises may not be able to bear the pressure, and a great number of enterprises will go on the edge of bankruptcy. To avoid this negative phenomenon, it is necessary to develop not only a theoretical base, but also practical skills and anti-crisis management. The role of the state is no less important, because improving the legislative base is the initial condition for the reform of the institution in Kazakhstan.

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