

SOME FEATURES OF APPLICATION OF THE ALTMAN NUMERICAL COMPUTING FOR PROGNOSTICATION OF PROBABILITY BANKRUPTCY OF DOMESTIC ENTERPRISES

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In the conditions of market economy ability to forecast the crisis state is one of main constituents of science of survival. The presence of the scientifically substantiated system of criteria, which allow in advance to expose the fact of financial insolvency and take necessary measures with the purpose of warning of negative consequences of its activity on partners, creditors and other subjects of entrepreneurial activity, is the inalienable condition of modern diagnostics and warning of bankruptcy.

There is the great number of methods of prognostication of bankruptcy in international practice.

$$Z = -0,3877 - 1,0736K_1 + 0,0579K_2, \quad (1)$$

where Z – index of insolvency;

K_1 is factor of coverage;

K_2 are the debt obligations are /combined assets.

This model was a two-factor, in particular, such indexes were used in calculation, as ratio of coverage and ratio of financial dependence. Is there a question how possibly in actual fact using a such simple function, is it adequate to solves a task, I.e. it is possible to foresee authenticity of bankruptcy, using two indexes only? An answer for this question is affirmative: more frequent than all, exploring functioning of the various economic systems is limited to the use of simple function.

At the same time obvious, that prognostication of insolvency of enterprise through a two-factor model does not provide high exactness of calculations, because influencing of other indexes which is not taken into account, business activity and efficiency of functioning is described; enterprises. Necessary more complex function depending on the greater quantity of variables.

Continuing the researches by Altman in 1968 developed a multifactor model. For its construction performance indicators were used 66 American enterprises for 20-years-old period, a half went a bankrupt from which, and other continued functioning. From 22 initial indexes by the discriminatory analysis 5 most considerable, described from different sides sides were selected the state financial enterprises. These indexes create the so-called Altman 2-model, looking like:

$$Z = 1.2K_1 + 1,4K_2 + 3.3K_3 + 0.6K_4 + 1,0K_5, \quad (2)$$

where the K_1 - working capital is / combined assets;

K_2 is the retained earnings / combined assets;

K_3 is income to payment percents and taxes / combined assets;

K_4 is market equity value / balance appraisal of debt;

K_5 is help from realization / combined assets.

Critical value of index, calculated by Altman at this statistical selection made 2,9. With this size the calculated value of the Z -calculation concrete enterprise is compared. At:

a) Z to 1,8 is authenticity of bankruptcy is ever-higher;

b) Z from 1,81 to 2,7 is authenticity of bankruptcy is high;

d) Z from 2,8 to 2,9 is authenticity of bankruptcy is low (there is possibility);

e) $Z=3,0$ and higher is authenticity of bankruptcy is very low. Authenticity of bankruptcy is estimated for a period in 2-3 years.

Later in 1983 Altman got the modified variant of the form for companies, actions of which were not quoted on an exchange:

$$Z = 0.717K_1 + 0,847K_2 + 3,107K_3 + 0.42K_4 + 0,995K_5, \quad (3)$$

where K_4 is the book value of own is a capital/loanable funds. The "boundary" value is here evened 1,23.

Experience of the use of this model in a number of countries is the USA, to Canada, Australia, Japan - showed that forecasting authenticity of bankruptcy through a fivefactor

model for one year is possible within 90,0%, and for 2 years - to 70,0%, for three - to 50%. Important to remember that never authenticity of bankruptcy can not and, appraised as zeroing. Especially it touches the Ukrainian enterprises, on activity of which the factors of uneconomic character influence largely. For domestic enterprises Altman "Z-model" is conducted on the basis of two forms of accounting - №1 "balance sheet" and «report about the financial results of enterprise» it is necessary for the receipt of the real, active information, that quality of the financial reporting was high, an enterprise is herein interested above all things exactly, because on numeral result it is possible to judge about the financial state of enterprise in the past, that will allow to develop strategy of its functioning in the future.

Application of a similar method was approved on the example of «Teploavtomat» Kharkov. As, we did not have possibility to estimate a property asset on a market value, because presently the method of determination of market value of property in Ukraine does not exist by reason of absence of the freely formed prices on capital goods, we - its book value was taken. As a result a conclusion was done that on beginning of current period there was ever-higher authenticity of bankruptcy on "Teploavtomat", in the end 1999 years there was very low authenticity of bankruptcy.

However necessary it is to mark that this enterprise got ever-higher estimation in connection with the high level of fourth index (own capital/loanable funds), consequently, this estimation does not answer reality, the groundless increase of stake of property asset took place due to the overvalue in connection with imperfection of operating method of estimation of complete funds, when to the old threadbare funds is attached the same significance as well as new. In the total there was unreal correlation of property and loan asset. Therefore model Altman, which this index is in, can distorts the real reality.

Thus, as the Ukrainian indexes to them were not close are they however will be other indexes, and consequently they must have other coefficients of meaningfulness. The size of these coefficients substantially influences on the results of calculations and rightness of conclusion about the state enterprises. Already one these circumstances give problematical character to the adequate use of the Altman Z-model for prognostication of bankruptcy in Ukraine.

Except for it it should be noted that the extrapolation model Altman will give reliable results only at the permanent operating conditions of objects of research. Presently for domestic enterprises the continuous changes are characteristic, both external environment and internal their state (change of proprietors, restructuring, falling of production volumes, change of markets of sale, worsening of the financial state), and, certainly, condition of their activity largely differ from those, for which the developed model (2). In particular, one of features of the Ukrainian economy is wide distribution of penniless calculations, that distorts the value of the financial indexes expected by a traditional method. The difference of the systems of taxation is so serious factor. It, sure, tells both on the coefficients of model and on its critical values, on which it is possible to judge about the degree of closeness of enterprise to bankruptcy.

The all above-mentioned testifies that our attempt to use the Altman model popular in the American terms for a domestic enterprise scarcely would appear successful and brought reliable results.

And so, it would be expedient to develop an own model for prognostication of bankruptcy of exactly the Ukrainian enterprises, which: a) it was based on the national standards of account and accounting; б) used the informative base of domestic enterprises taking into account their of particular a branch specific for determination of coefficients of meaningfulness of indexes and establishment of critical values; in) allowed to take into account the features of activity of the Ukrainian enterprises.

Experience of other countries shows that the financial and operating restructuring of enterprises through procedure of bankruptcy enables to the separate viable enterprises to rid of old debts, optimize the quantity of personnel, to begin to change the pattern of ownership due to it more attractive for the strategic investing. At the same time operating restructuring, which leads to growth of efficiency of production, and financial readjustment which minimizes charges and maintenances of debt obligations, enable to the enterprise to begin business with a "clean page", getting here comparatively favourable starting terms.

As regards the pre-privatization restructuring of state enterprises, that state as present their owner must be interested in restructuring promoting the investment attractiveness of these enterprises, that will allow more advantageously to sell them fully or partly. In a present market situation swingeing majority of domestic enterprises does not have or are in small positions to manage the profits, as for one enterprises demand and terms of their sale, certain by the hard requirements of oversea competition markets, and for other – the very narrowed internal demand. Absence of internal sources of financing, and also low investment attractiveness, frequently does not allow to expect the substantial influx of external investments for the technical and technological update with the purpose of increase of competitiveness of enterprises. On this account one of key trends of restructuring of enterprises in the nearest prospect will be the substantial decline of expenses, based on creation by them effective control systems by expenses.