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DISCRIMINANT MODEL FOR ASSESSING THE LEVEL OF FINANCIAL STABILITY AND CREDITWORTHINESS OF RETAIL ENTITIES

Financial stability of commercial enterprise is a dynamic complex category that displays the status, structure and areas of use of enterprise's financial resources, ability to balance internal and external funds, in order to ensure its permanent financial solvency and creditworthiness, which necessitates a detailed analysis of this category in relation to the trading company.

Particularly acute is the problem of assessing the level of financial stability of trade enterprise in the modern economic environment, as banks closely cooperate with trade enterprises through active crediting.

An important aspect of this process is analysis of the financial condition of the borrower, conducted using discriminant analysis with determination of the integral index. At the same time, branch specificity of borrower is also taken into account. The indicators were developed for each type of economic activity.

However, the integral indicator for trade enterprises was identified in general. The author proposed and calculated integral indicator for retail entities on the basis of financial statements of retail entities in Chernivtsi region for the period 2007-2013 (20 enterprises per reporting period).

To develop the model, we used the following algorithm:

1. Formation of study samples. For the discriminant analysis all the companies were divided into two groups where the first group included financially stable retail entities and the second – other crisis-hit companies.

2. Selection of independent changes used for analysis by applying correlation and regression analysis.

3. Elimination of multicollinearity by Farrar-Glauber test using the following statistical criteria: Pearson's chi-squared test; Fisher F-test; Student's t-test. Accordingly, we received the following factors for further analysis: autonomy (X_1); correlation of internal and external capital (X_2); return on assets for net profit (X_3); current (total) liquidity (X_4); return on sales (X_5)

4. Calculation of integral index on the basis of discriminant analysis, which allows forming five-factor model to assess the level of financial stability and creditworthiness of retail entities:

$$Z = 6.317 \cdot X_1 + 0.398 \cdot X_2 + 1.071 \cdot X_3 + 4{,}139 \cdot X_4 + 0{,}197 \cdot X_5 - 11.222$$

5. The final step of the discriminant analysis is assessment of quality of discriminant model. The distribution of the analyzed companies into "healthy" or "sick" group depends on the value of the integral index, which is a result of solution of discriminant function. To do this, the arithmetic mean of the average values of Z for samples from both groups of enterprises should be calculated: Z_{1c} = 12.48; Z_{2c} = -2,48; Z_K = 0.

   Accordingly, if the discriminant function is smaller than its critical value, the company is considered to be financially unstable, and if contrariwise – financially stable.

6. Suggestion of the scale of assessment of the level of financial stability and creditworthiness of the company, according to the found average values of Z indicator and the critical value.

7. Examination of adequacy of the developed model. Testing of the model showed that the total error is – 7%. 93% of entities were classified correctly, which demonstrates the high quality of model for assessment of the level of financial stability and creditworthiness of retail entities.

   Thus, the developed model has the appropriate level of adequacy, and can be widely used in the practice of analysis by both credit experts of banks and managers of retail entities.

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