

# Business Reorganization Evaluation Model

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**Abstract.** The efficiency of the company may use financial statement data for the calculation of the various absolute and relative performance, comparing them combining and interpreting. One of the simplest financial analysis techniques to financial stability is a horizontal method of analysis - the company's financial statements (balance sheet, profit and loss statement, cash flow statement) the absolute indicator of changes in research. Main financial statements items index changes have a significant impact on the company's financial stability. Using the horizontal method of analysis can assess the company's financial stability of the positive or negative trends.

**Keywords:** Reorganization, Model, Analysis, Financial Statements.

## 1. Introduction

Scientific work indicates that the company can be used for determining the efficiency of financial reporting data, calculated from the various absolute and relative indicators, respectively, compared to combining and interpreting. One of the simplest financial analysis methods for assessing financial stability analysis method of horizontal-company financial statements (balance sheet, profit and loss statement, cash flow statements) to absolute indicators of the study. Large major financial statement item index change has a significant impact on the company's financial stability.

Using horizontal analysis method to evaluate the company's financial stability, positive or negative trends. The most important items in the financial statements of the indicators analysed in the context of profit and equity changes. Financial ratio analysis techniques, it is recommended that you use the liquidity, cash flow and profitability, solvency, exploring patterns and trends. Factor for the evaluation of the appropriate use of comparative analysis. You can apply for the classification of financial ratios and solvency assessment under the ball, as well as to create a matrix that describes the company's solvency and profitability of interrelationships. Profitability, liquidity and solvency ratio are important indicators as prevailed. [5]

Business performance measurement methodology, emphasis is placed on a separate signals for the operation of the plant. Relationship analysis specified in this way, it is susceptible to errors of interpretation, and the potential for deception. For example, a company with poor profitability and solvency and/or potential may be considered ineffective. However, due to its liquidity ratio, the view is changed.

To create a methodology after thorough analysis, was chosen as a statistical analysis of the discriminant method. Analysis of discriminant first described by Fisher in 1936.[4] In practice, the problem occurs:

- The signs, which fully determines the object's ownership of it, or another set of observation is not possible or requires too much time or money on consumption;
- Information about some of the features are lost and need to be renewed;
- How well the prediction by using existing data.

Diskriminant analysis method is a multi-dimensional statistical analysis that serves for the quantitative expression of existing information and processing in accordance with the criteria selected in the optimal solution. [2]

## 2. Body Part

In the 20th century diskriminant analysis was mainly used in the biological and behavioral sciences. In recent years, this technique has become increasingly popular for practical business world. For example, the

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ability to have a very important indicator of the company's activities. Forecast data can be displayed in the company's likely future development. Considering that discriminant analysis is analytical method, whose task is to find, in this case, the function, which allows us to predict with high probability a solvency (efficiency) for a particular company, the calculations are widely used in mathematics and statistics. [3] Discriminant rationale (credibility) is insufficient or weak correlation (relationship) between formations that are seemingly in a different way.

Discriminant analysis is a statistical technique used to classify an observation in one of several groupings depending on the individual characteristics of the observation. It is used primarily to classify problems, if the dependent variable appearing in a qualitative way, for example, male or female, to be effective or not effective, and make predictions. So the first step is to establish a clear classification of groups. The number of the original group, there may be two or more. After you create a group object in the data are collected for groups; discriminant analysis of the most basic way an attempt to obtain a linear combination of these characteristics. If a particular object, for example, a company's characteristics (financial indicators), which can be calculated in respect of all undertakings analysed discriminant analysis determines the range of discriminant factors. Discriminant analysis techniques have the advantage of having all the characteristics that are specific to the undertakings concerned, as well as the interactions between these properties. Discriminant analysis is a statistical method used to understand the relationship between the dependent variable and one or more independent variables. The dependent variable, which is trying to explain or predict using the independent variable values.

This analysis is linked to the two groups, consisting of an efficient and inefficient companies. Therefore, the analysis is transformed in its simplest form: a single dimension. Discriminant function of the form  $R = V_1X_1 + V_2X_2 + \dots + V_nX_n$  transforms the individual variables in the discriminant value or the value of R, which is then used to classify the object which

$V_1, V_2, \dots, V_n =$  discriminant factor and  $X_1, X_2, \dots, X_n =$  independent variables.

Discriminant analysis is usually motivated by caring sensitive variable (factor). They are also taking advantage of the potential to create a model with a relatively small number of selected measurements that is great information. This information may very well be differentiated between groups, but regardless of whether this is relevant and significant trim, there are many important aspects of the analysis. Perhaps the main advantage of discriminant analysis in classification problem - solving potential, while analyzing the whole variable profile objects, instead of sequentially considering the individual characteristics. Research results model is a linear analysis of six factors that are objectively assessed and should be combined to give the total score, which then becomes the basis for society.

Due to the large number of variables, the survey was used in the financial performance of the list of 22 potential variables, coefficients. For comparison, an analysis was 15 with a reorganization process and 23 non-trading companies and the various financial ratios, based on the results of the study, it was concluded that a number of financial ratios indicate the company's operation efficiency. As a result of the choice of indicators will depend on the determination of the model results, so the pointer to the correct choice will allow you to create accurate working model. The analysis was chosen by various financial ratios. All the factors were divided into four groups according to their meaning:

- 1) liquidity
- 2) profitability
- 3) solvency
- 4) activity.

Corporate reorganizations in the determination of the effectiveness of the model was based on the principle of from each factor group selected at least one factor of importance who showed the greatest difference between the reorganization process tied and unrelated companies. To arrive at the equation variables, use the following procedures:

- 1) The statistical significance of observations in various alternative functions, including each independent variable;
- 2) Evaluation of the correlation between the variables.

3) Monitoring the accuracy of projections between different profiles;

4) The author of the study

The study aims to find out what factors affect how large is the company's gross profit and how it would be possible to classify the enterprises with high and low for this pointer as a function of the discriminant. Consequently, the tasks to be performed to achieve this objective are:

- 1) Create a diskriminant function,
- 2) Check the plausibility of these functions and the ability to predict the gross profit by different companies.

Analysis on data more than 10 companies. The work uses data on relevant indicators: gross profit, the current liquidity and turnover, EBITDA/equity/assets/liabilities, revenues and return on equity, debt or the company operates successfully. Data are from 2000 to 2010.

To create a discriminant function, originally calculated average gross profit. Companies that this level was higher is discriminant functions created marked with a "2", but the company, which is below with "1". Give data on the average gross profit is 0.15371, which was calculated by Excel.

Legend:

VAR00001 gross profit,

VAR00002 the current liquidity

VAR00003 EBITDA/sales

VAR00004 equity/liability

VAR00005 turnover/assets

VAR00006 equity returns

All data calculated using SPSS software.

Table 1 shows the averages and standard deviations for the two groups, both where gross profit level is high and low.

Table 1

		Group Statistics					
SADAL		Mean	Std. Deviation	Valid N (listwise)		Unweighted	Weighted
1,00	VAR00001	7,659E-02	4,699E-02	55	55,000		
	VAR00002	,7278	,2669	55	55,000		
	VAR00003	2,058E-02	3,514E-02	55	55,000		
	VAR00004	,3455	,2474	55	55,000		
	VAR00005	3,5816	1,3561	55	55,000		
	VAR00006	-,9481	8,7310	55	55,000		
2,00	VAR00001	,2332	7,525E-02	53	53,000		
	VAR00002	,8890	,6351	53	53,000		
	VAR00003	5,746E-02	4,492E-02	53	53,000		
	VAR00004	,8255	,8699	53	53,000		
	VAR00005	3,1151	1,0748	53	53,000		
	VAR00006	,1673	,9065	53	53,000		
Total	VAR00001	,1535	,1003	108	108,000		
	VAR00002	,8069	,4884	108	108,000		
	VAR00003	3,868E-02	4,412E-02	108	108,000		
	VAR00004	,5811	,6758	108	108,000		
	VAR00005	3,3527	1,2428	108	108,000		
	VAR00006	-,4007	6,2597	108	108,000		

In addition to that, let's look at the structure of the matrix (table 2). It provides additional information about each variable's contribution and importance of diskriminant analysis. It displays the variables that were not included in the diskriminant function. It is built on the basis of a standardized diskriminant function.

Table 2

	Function
	1
VAR00001	,957
VAR00004(a)	,424
VAR00005(a)	-,353
VAR00003	,350
VAR00006(a)	-,150
VAR00002(a)	,019
Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions Variables ordered by absolute size of correlation within function.	
a This variable not used in the analysis.	

In table 3 is shown the diskriminant function and its coefficients. The following table displays the canonical function of standardised coefficients diskriminant. These factors are used to calculate the variable value in the canonical (scor) in each case.

Table 3

	Function
	1
VAR00001	1,178
VAR00003	-,364

As a result of the reorganization was established for the determination of the effectiveness of the model-R features:

$$R=1,178 \cdot X_1 - 0,364 \cdot X_2$$

Which

X 1 gross profit

X EBITDA/sales

One indicator of a positive impact on the size, the other being negative. The data shows that in 55 cases (of all businesses in all) companies judged negatively because investigational levels are lower than the average. Initially, 53 cases studied, the level was higher than average, but the classification results of one of these companies in any of the years were incorrectly added to the first group. Overall, the results of the diskriminant function is relatively good because 97,2% of all sightings were classified correctly.

So this created in the diskriminant function, although only two variables, however, gives a pretty accurate to characterize and categorize the company after being in the (gross profit).

Table 4: R model includes a description of the financial ratios

Financial ratio	Description
Gross profit, profitability	Gross profit profitability reflects the company's pricing policies and production efficiency. If the gross profit rose as a result of price increases, then the company may become incapable of competition may reduce its turnover. Therefore, it may appear that the company is better to lower the price of their products and hence the turnover could increase as much, although the gross margin increased. Gross profit, profitability will enable you to calculate a net change in the extent to which the change affects the gross profit. So the average is 15%.
EBITDA/sales	This indicator shows how profitable is the total economic activity, without taking into account the depreciation of fixed assets, as well as interest and taxes. It shows the true profitability of the company's productivity, abstracting from any duties or obligations. This analysis is based on the creditors and investors can be gleaned about the company's ability to generate cash resources.

The effectiveness of the model help an investor will be able to evaluate and select the companies that it would be desirable to make an investment. Those companies who R index was slightly higher than the critical value of the company's performance has been assessed at a higher level, but those who R index was lower than the critical value, had financial problems and the need for financial support of shareholders.

Trading company efficiency evaluation model is a "feasibility model", which is used to collect data and average values, so in some cases estimated R index may not correspond to other businesses.

On the basis of further research results by developing business models for the assessment of the effectiveness of scale (table 5)

Table 5: R index-performance evaluation of a scale model

R index	Business efficiency	Comments
Till 0,20	Low	Need to make significant changes to improve the organization's financial situation, may need to attract additional funding from shareholders, as well as from credit institutions; to assess the possible merger with one of the market participants. The company's management and the owners should be looking for ways to increase organizational efficiency
0,20	Medium	The company must resolve financial problems. Both prospective and existing credit employers and partners need to be careful in its relations with the company.
0,21-0,30	High	The company's financial performance has reached a stable results, the company's management must continue to seek opportunities to enhance business performance
Above 0,30	Very high	The company has no need to perform too much detail for an analysis of the financial situation of the company to operate efficiently.

### 3. Conclusion

Diskriminant analysis, it is appropriate to use for analyzing data when the criterion or dependent variable is expected or independent variables are divided into intervals. An effective reorganization strategy enables significant firm growth.[1] The author recommends investors to calculate the recommended financial factors, compare them to industry averages.

### 4. References

- [1] Ashon J.E., Cook F.X. Jr. & Schmitz P. Uncovering hidden value in a midsize manufacturing company. 2003.Harvard Business Review, 81 (6): 4-12
- [2] Klecka W. R. Discriminant analysis. London 1980. – 71 p.
- [3] Krastins O. Ekonometrija. Mācību grāmata augstskolām. – Rīga: Republic of Latvia Central Statistical Bureau, 2003, 2007 p.
- [4] Malhotra N.K. Marketing research: an applied approach. Prentice Hall Inc., Upper Saddle River, New Yersey. 2003 – 786 p.
- [5] Sneidere R. Finanšu analīzes metodes uzņēmuma maksātspējas prognozēšanai. Dissertation. Rīga. 2007.- 178 p.