

Genetic Algorithm in Default Forecasts

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Abstract

In this article I would like to describe a genetic algorithm, which like the well-known discriminance analysis is able to produce a weighted-sum function, which can be used for financial default forecast given well defined conditions. In this method a linear combination of financial ratios can be used, which can be calculated from the annual Balance Sheet and Profit and Loss Statement of the companies. Using this function a classification rule can be set up just like in case of discriminance analysis. With this classification we are able to give default forecast using the financial ratios of the company. I used real companies and real data (2008) for testing the heuristic method. I compared the results with the results of a now-used economical model (discriminance analysis). The comparison shows the reliability of the method and the influence of each parameter to the reliability of the result.

Keywords: genetic algorithm, default forecast, finance default, discriminance analysis

1. Introduction

I would like to describe a heuristic algorithm for in the economics well-known problem, namely the default-forecast. This is an important issue in the current financial situation, especially if we think about the financial crisis. Default models are used to project defaults in the economics. One of the famous models is the so called discriminance analysis. I would like to develop the new heuristic model according to the base of this model. In order to solve the problem I use the results of the well-known genetic programming. The genetic algorithm can be used in those problems, where the explicit connection between the input variables and the expected result is unknown or it is not cost-effective to determine this connection. In order to use these genetic algorithms in an effective way, we need to measure the “goodness” of the function. For this measurement I used test data, where the expected result is known, so we can determine the well-known fitness-function. With the help of this method we can develop an approximate method, which results a classification function. Using this function and the appropriate financial ratios the model is able to project the financial default of a company.