

Identification of Default Clusters: an analysis of Portuguese industry sectors

Rita Duarte Pimentel

Phd Program in Statistics and Stochastic Processes

Técnico Lisboa, Universidade de Lisboa

Abstract

Nowadays credit risk and investment decisions are central topics in mathematical finance. Credit risk is a major concern for banks that, after the recent financial crisis, became (too) restrictive to lend money. Therefore, companies need to accurately evaluate their projects to convince banks that their investments are viable.

In this work we concentrate our focus on credit risk, in particular, in the Portuguese economy. We use data provided by Banco de Portugal in which the series are concerning to non-financial corporations separated by branch activity.

On one hand, we apply clustering analysis techniques to the time series of the overdue loans ratio after the global financial crisis. Hence, we find out groups of activities with similar default behaviour. Then we examine the series of the loans granted before the global financial crisis in each cluster. Our purpose is to investigate if there is a relationship between the loans granted before the global financial crisis and the defaults occurred after it.

On the other hand, we explore the existence of causality between the series of the loans granted and the overdue loans ratio. We try to understand if there is a relation of cause and effect in each cluster defined, possibly with some time lag. Moreover, we verify if this type of relation evolves as time goes by.

With this work we pretend to contribute to highlight the need of diversification criteria by branch of activity in the credit sector.