Efficiency and credit ratings: a permutation-information-theory analysis

Aurelio Fernandez Bariviera[1,8], Luciano Zunino[2,3,4], M Belén Guercio[4,5], Lisana B Martinez[1] and Osvaldo A Rosso[4,6,7]
Show affiliations

Abstract

The role of credit rating agencies has been under severe scrutiny after the subprime crisis. In this paper we explore the relationship between credit ratings and informational efficiency of a sample of thirty nine corporate bonds of US oil and energy companies from April 2008 to November 2012. For this purpose we use a powerful statistical tool, relatively new in the financial literature: the *complexity–entropy causality plane*. This representation space allows us to graphically classify the different bonds according to their degree of informational efficiency. We find that this classification agrees with the credit ratings assigned by Moody's. In particular, we detect the formation of two clusters, which correspond to the global categories of investment and speculative grades. Regarding the latter cluster, two subgroups reflect distinct levels of efficiency. Additionally, we also find an intriguing absence of correlation between informational efficiency and firm characteristics. This allows us to conclude that the proposed permutation-information-theory approach provides an alternative practical way to justify bond classification.