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The behaviour of share returns of football clubs: An econophysics approach

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HIGHLIGHTS

- We apply DFA and DCCA's correlation coefficient to European football stocks.
- We show that most clubs have an evidence of dependence in their returns.
- Clubs' returns are positively correlated with almost all national indexes.
- Correlations between clubs' returns and national indexes are weak.

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ABSTRACT

Football is a sport that moves thousands of people and millions of euros. Since 1983, several clubs entered the stock markets with shares, and now twenty two clubs are listed in the Stoxx Football Index. In this study, we analyse the behaviour of the return rates of such shares, with Detrended Fluctuation Analysis and Detrended Cross-Correlation Analysis (and its correlation coefficient). With Detrended Fluctuation Analysis, we are able to observe that the shares of several clubs are far from the behaviour of a random walk, which is expected by the theory. Using Detrended Cross-Correlation Analysis, we calculate the cross correlations of clubs' returns with national indexes and then with the Stoxx Football Index. Although almost all of them are positive, they do not seem to be strong.

1. Introduction

Football (or soccer, in the USA) is one of the most important sports in the world, and it involves a large amount of money. The last Football Money League, published by Deloitte [1], shows that clubs like Real Madrid, FC Barcelona and Manchester United have total revenues of over €500 million. Furthermore, competitions involving national teams are also responsible for a large amount in revenues: for example, the 2014 Brazilian World Cup has generated revenues of about $4.8 billion.

In Europe, Tottenham Hotspurs became the first football club to be floated in the stock market, in 1983, with several clubs following it. At the beginning of the millennium, the number of clubs listed on European stock markets was almost forty, and currently, is twenty two.

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