

A comparative numerical study of the index Ibox 35 with respect to other international indicators

M.A. Navascués¹, M.V. Sebastián², M. Latorre³

SUMMARY

The financial crisis of the period 2008-2014 has specially hit the countries of Southern Europe, and particularly Spain. This circumstance has caused an anomalous behavior of the stock market of our country. Our purpose is to search if the reference index of the Spanish market Ibox 35 owns some distinguishing features with respect to other international indices, from a numerical point of view. For it, the first goal is the improvement of the oscillators currently employed by means of procedures of interpolation and approximation. The existing techniques are complemented with integral parameters, coming from the implementation of trend curves. The methods used are of classical type along with other of fractal character. The functions obtained help to determine the basic behavior of the index, reducing the difficulty of the daily unpredictability of the quotes. The second objective is a numerical comparison of the evolution of the Ibox 35 complexity with respect to other international indicators.

Keywords: Stock indices, Ibox 35, Fourier analysis, fractals, fractional Brownian functions

AMS Classification: 28A80, 65D05, 65D10

References

- [1] H.E. HURST, R.P. BLACK, Y.M. SIMAIKA. *Long-term storage: an experimental study*. Constable, London, 1965.
- [2] B.B. MANDELBROT, J. W. VAN NESS. Fractional Brownian motions, fractional noises and applications. *SIAM Review*, **10**(4), 1968.
- [3] M.A. NAVASCUÉS, M.V. SEBASTIÁN. Fractality tests for the reference index of the Spanish stock market. In: *Monog. Sem. Mat. García de Galdeano*, 39, pp. 207–214. 2014.

¹Departamento de Matemática Aplicada
Universidad de Zaragoza
María de Luna 3, 50018 Zaragoza
manavas@unizar.es

²Centro Universitario de la Defensa
Academia General Militar
Ctra. de Huesca s/n, 50090 Zaragoza
msebasti@unizar.es

³Escuela de Ingeniería y Arquitectura
Universidad de Zaragoza
María de Luna 3, 50018 Zaragoza
mario.latorrepellejero@gmail.com